Laboratory Scrapbook, Cat. 298

This scrapbook consists primarily of drawings and contains only a few dated items, covering the period July 1870-September 1871. Some of the drawings are by Edison; others were probably done by draftsmen and mechanics at the American Telegraph Works. The drawings are mostly of telegraph apparatus and range from formal full-scale drafts to rough sketches on scraps of paper. Some of the drawings have been cut out as patterns, possibly for use in the construction of apparatus. There is also a plan of a building and numerous clippings of patent specifications and drawings from the reports of the patent commissioner between 1857 and 1859. (Additional clippings for 1860-1868 can be found in Cat. 1177, Miscellaneous Scrapbook Series.) There is also some business-related material, including advertising circulars, two payroll accounts for January and February 1871, and one account sheet for the firm of Edison & Unger, dated September 13, 1871. The cover is marked "S."

The book contains 215 numbered pages. It has been disbound, and most items have been removed from their scrapbook pages to allow for filming. The scrapbook page number has been filmed below each document.

Blank pages not filmed: 41-42, 136, 144-157, 161, 164-165, 168-171, 174-175, 178-181, 184-185, 188-192, 194-195, 197-215.

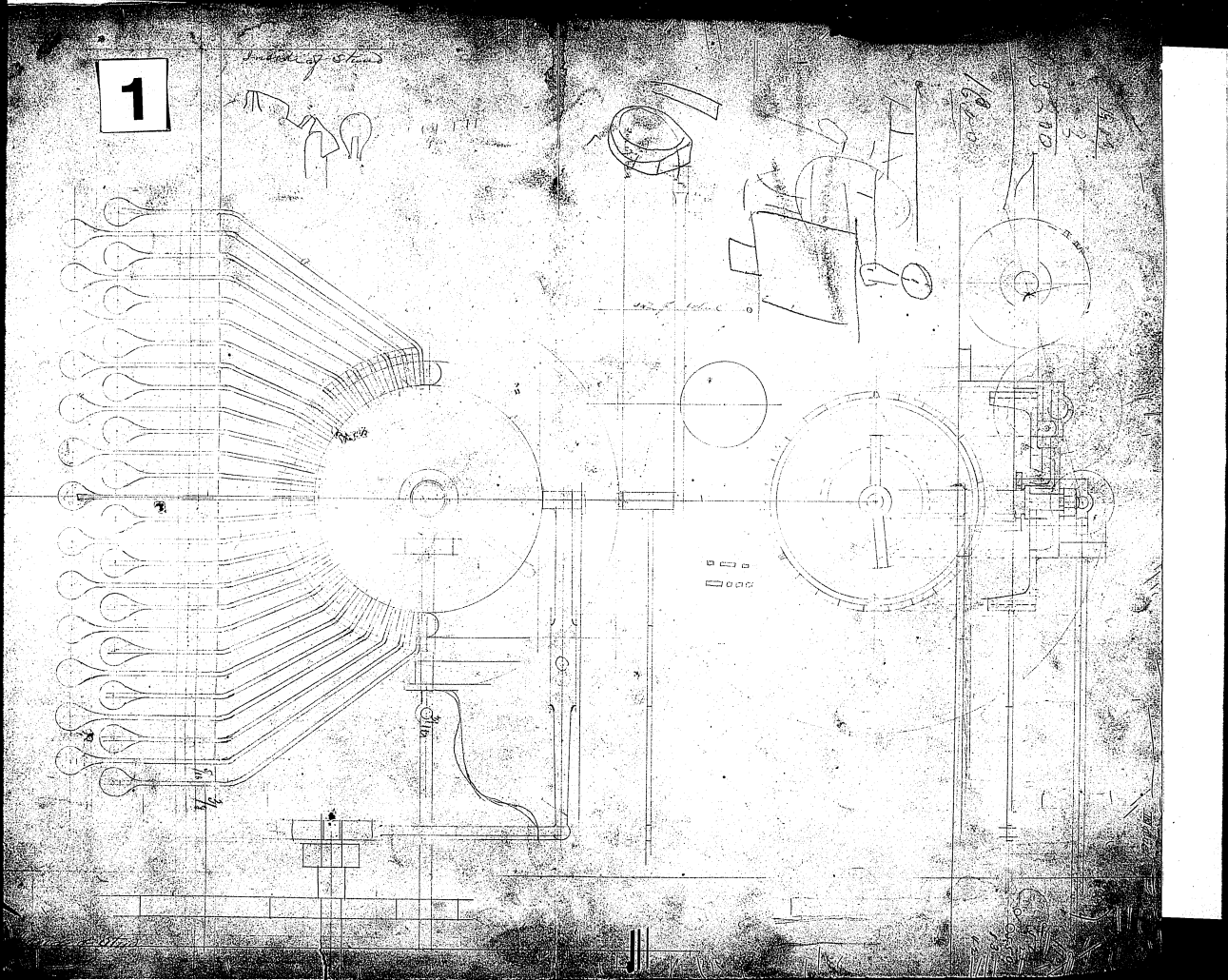
Scrap Book Val 8

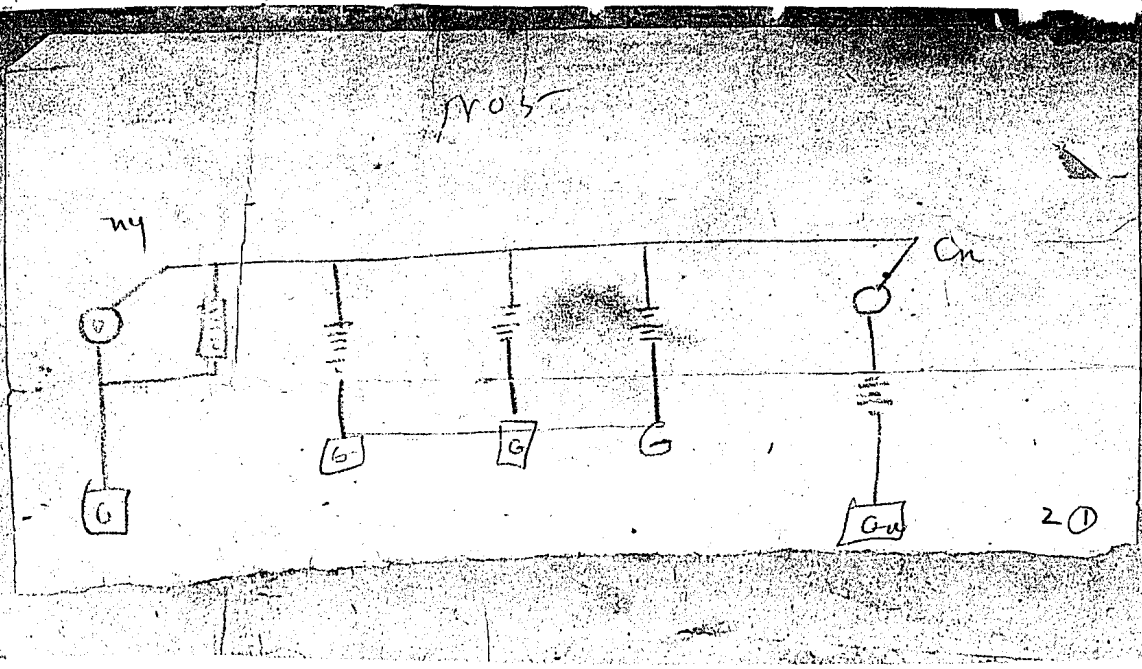
Edison & Unger. Newark 1871

Partnership papers - Sept. 13, 1871

Sketches & Drawings

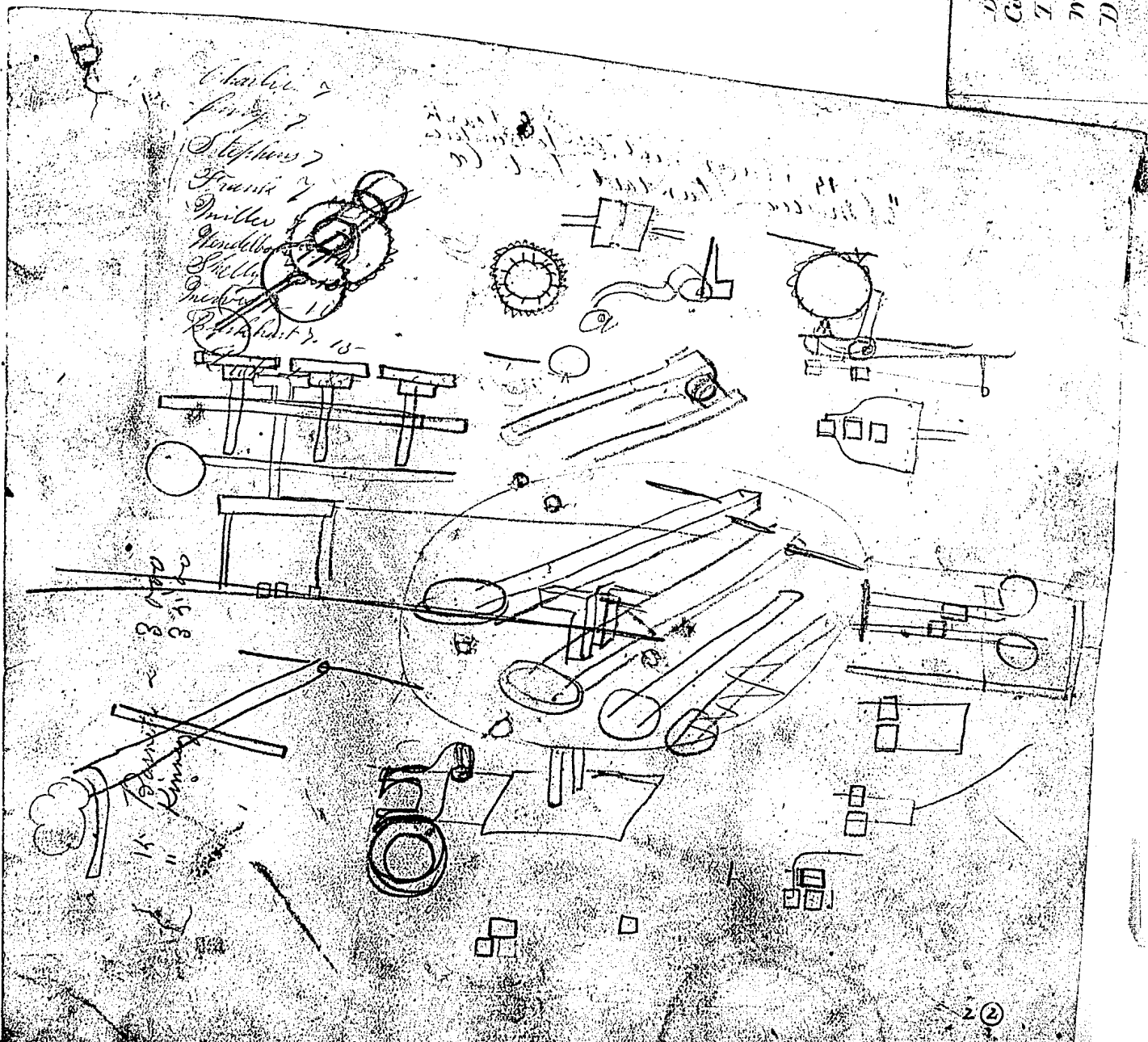
12


1



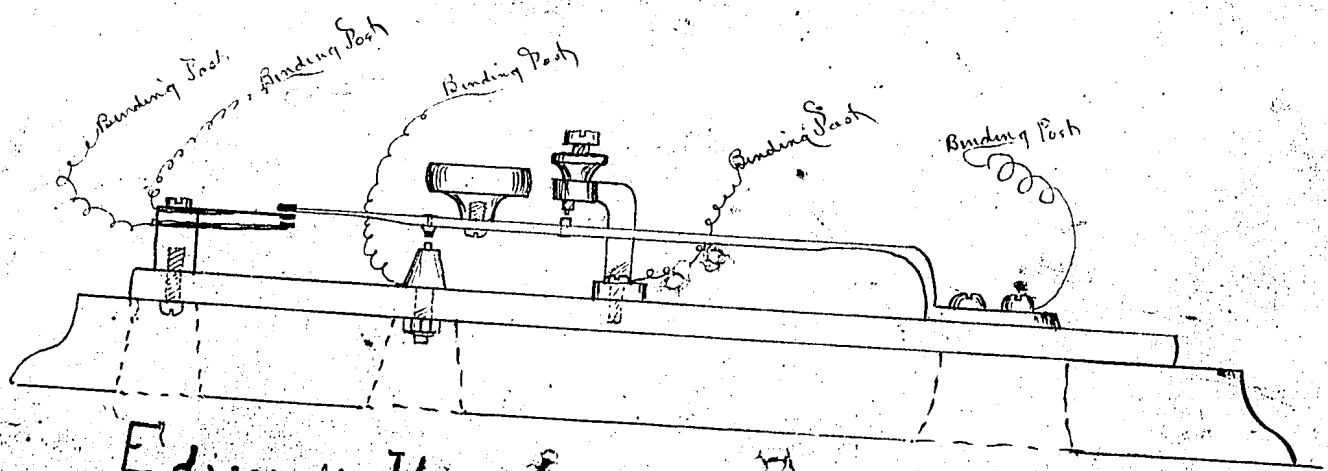
Diameter of Cylinder 6.04
Stroke 18.97
Travel of Piston 155 mm
Width of Groove 7.5
Depth 5.8

20



2

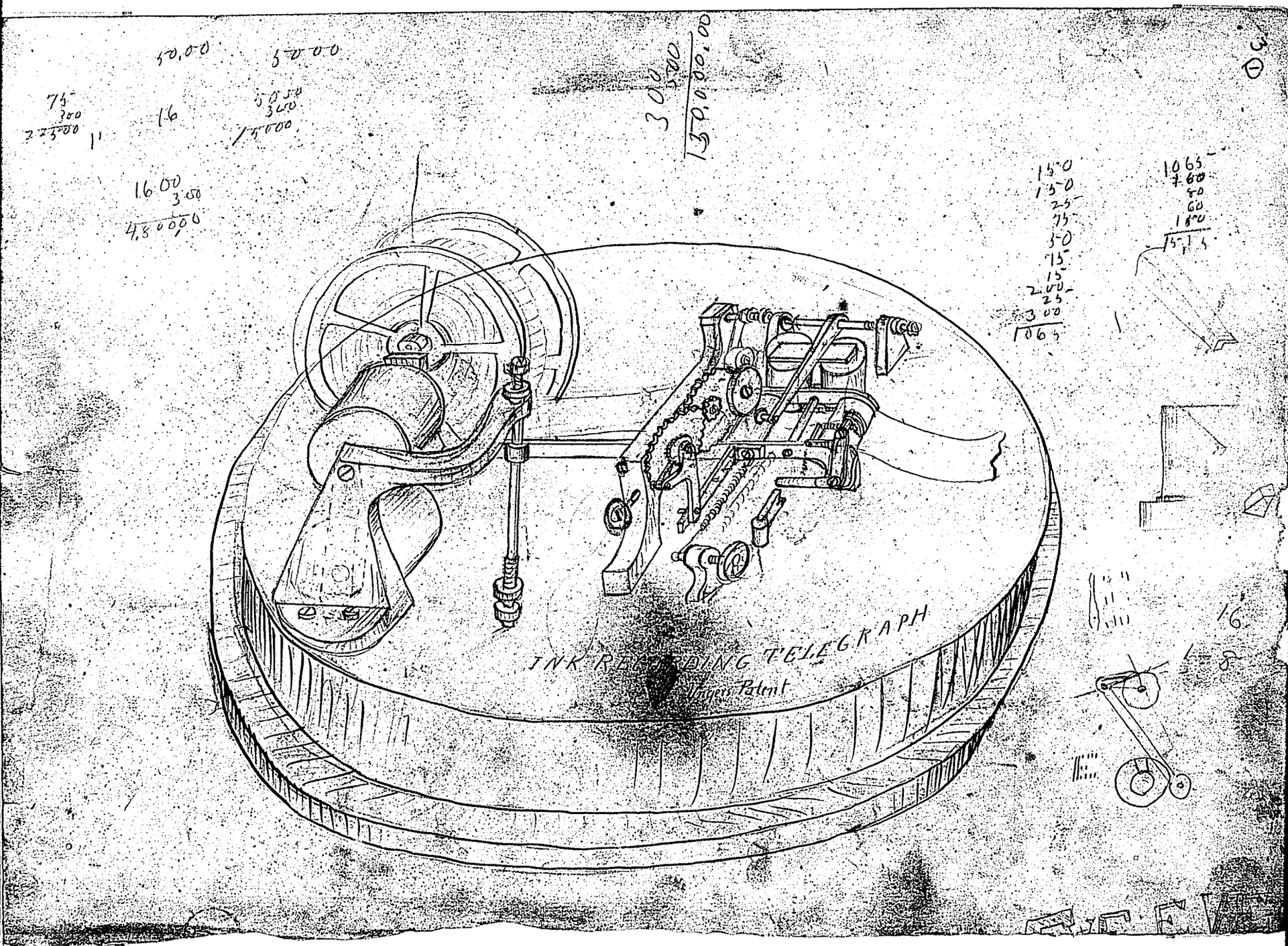
Key for Testing Printers

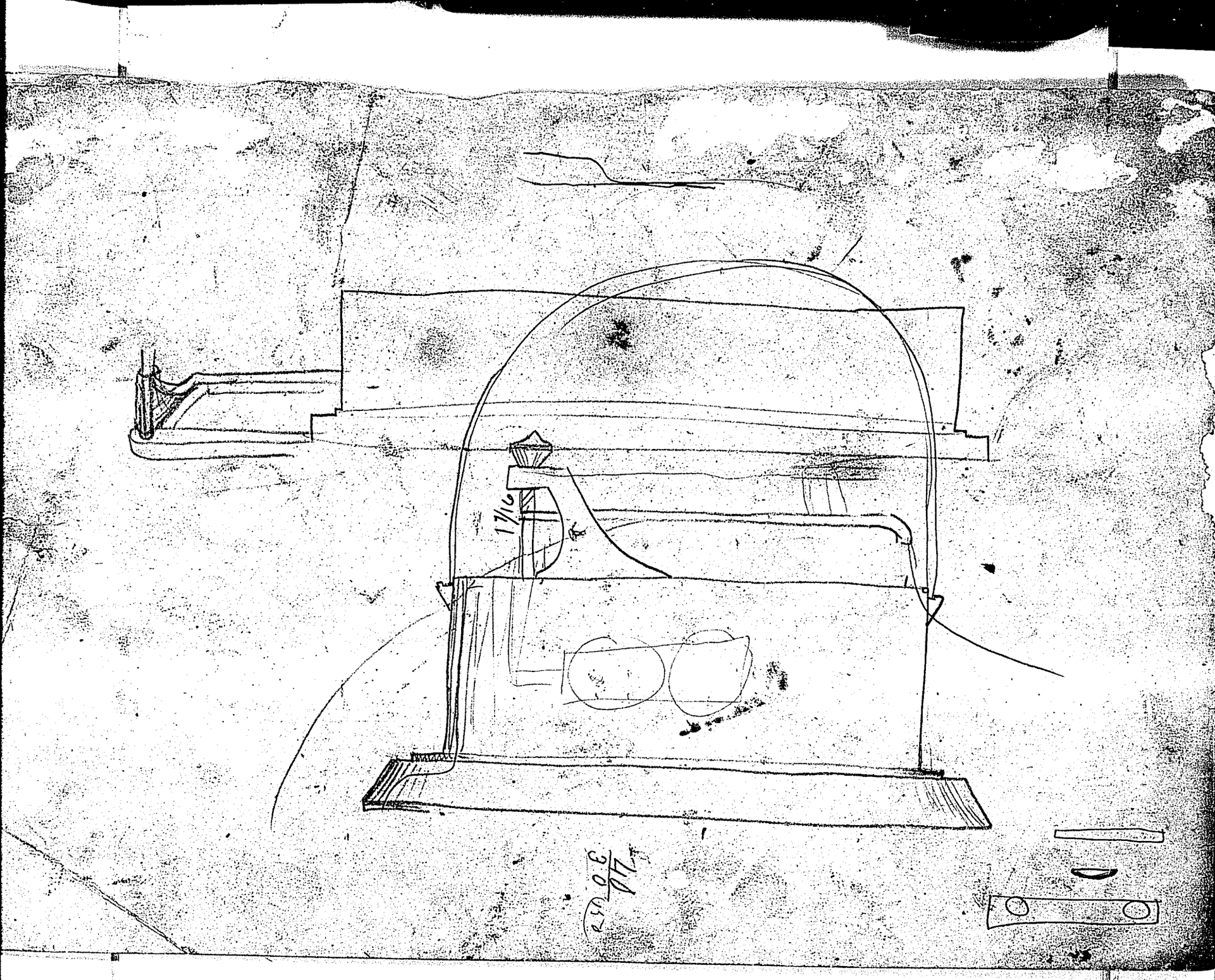


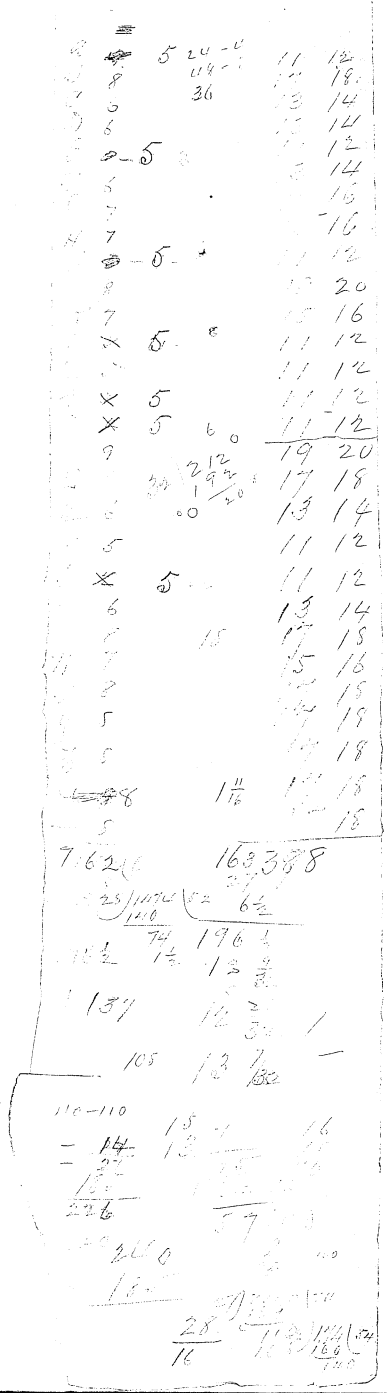
Edison & Unger

Newark, N.J.

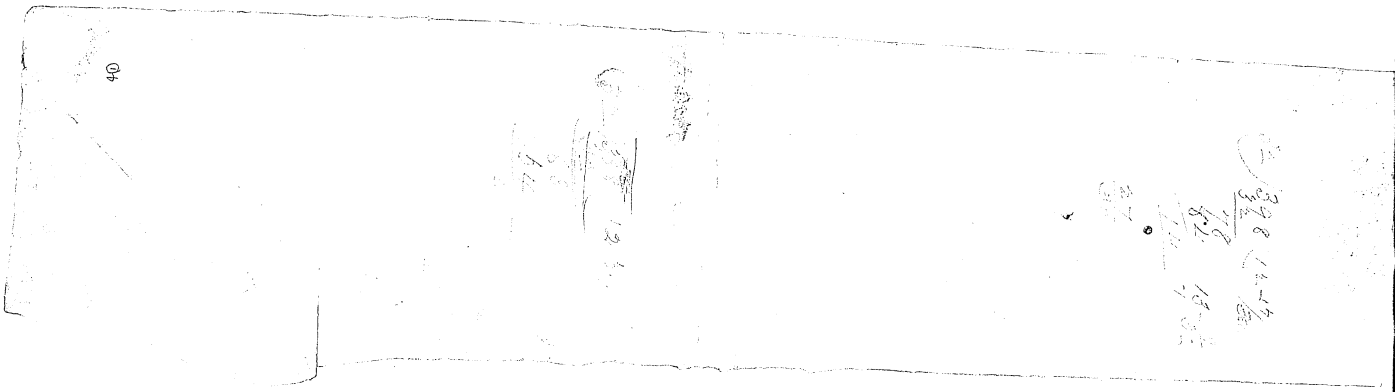
Key for Jos


INK RECORDING TELEGRAPH
Rogers Patent

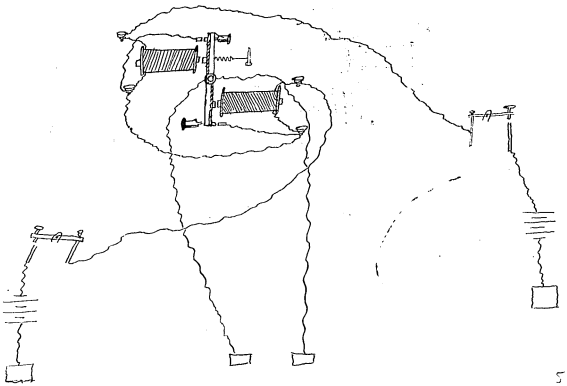




4



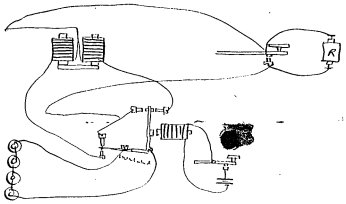
Rochester



50

Brown

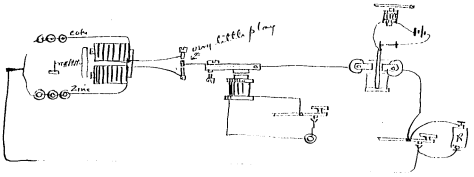
Try this. one Battery



Brown

Try it this way

Keep memorandum how it work =

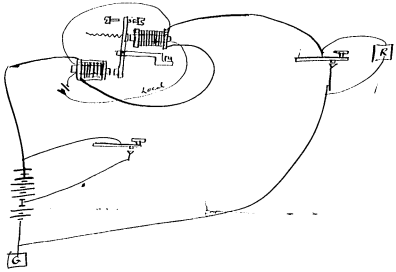


wound opposite, so that one ball will go around the wire in the same direction as the other

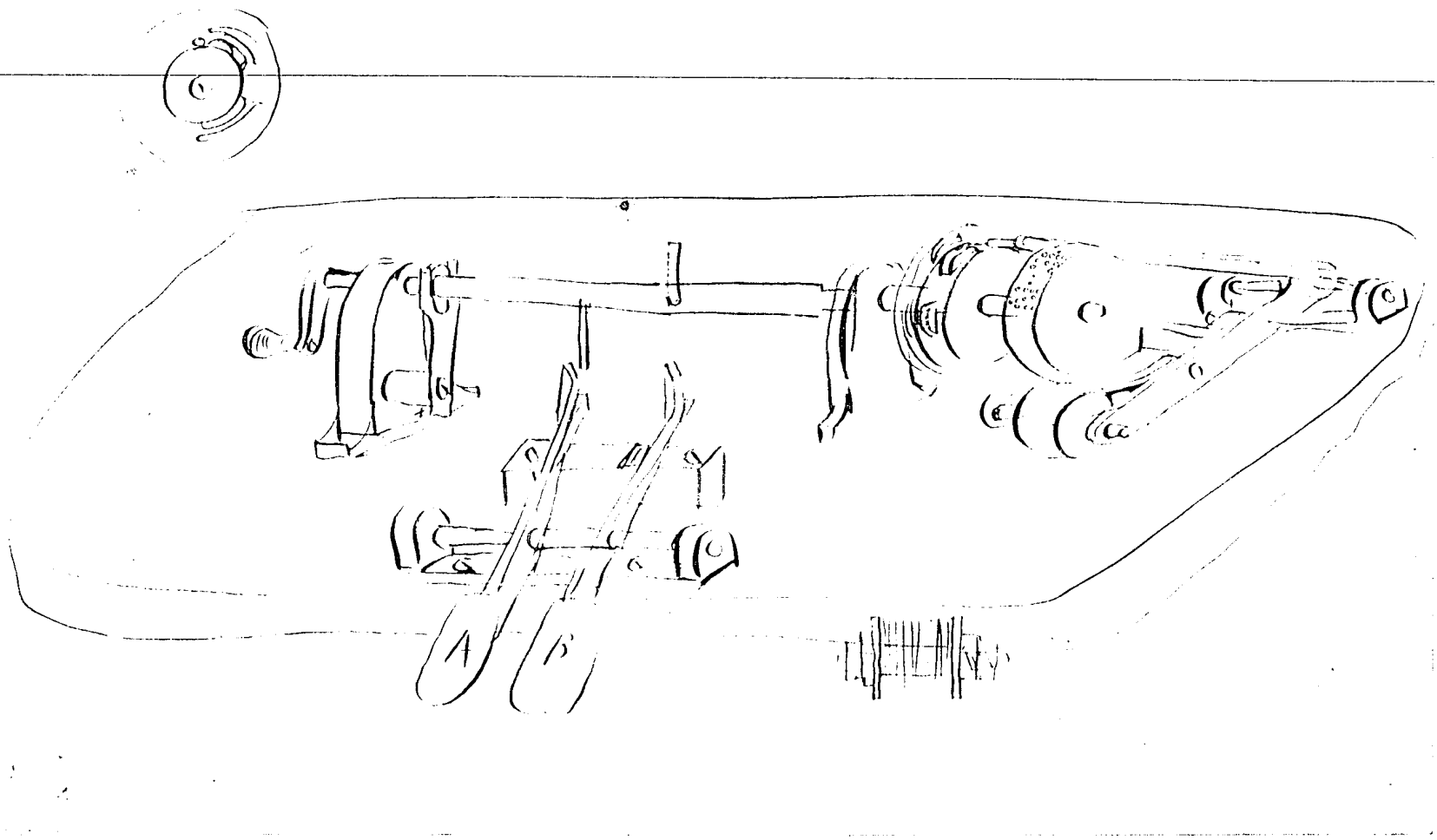
[illegible]

Brown

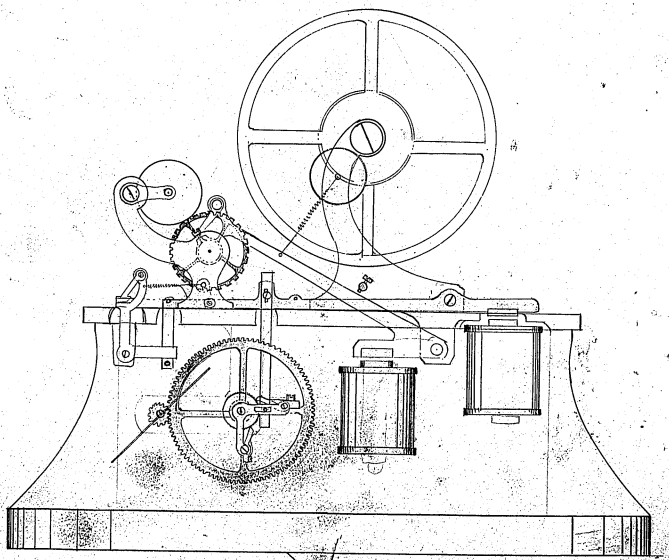
Try this



5

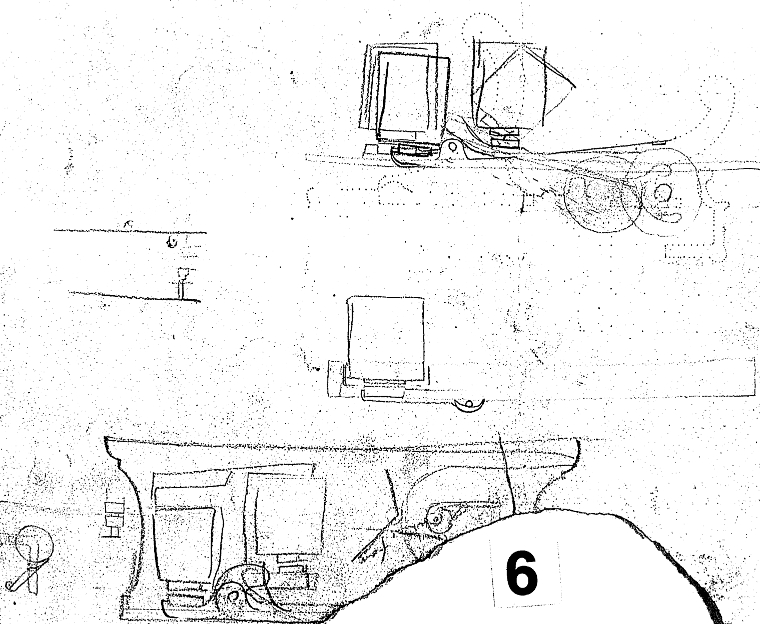


5

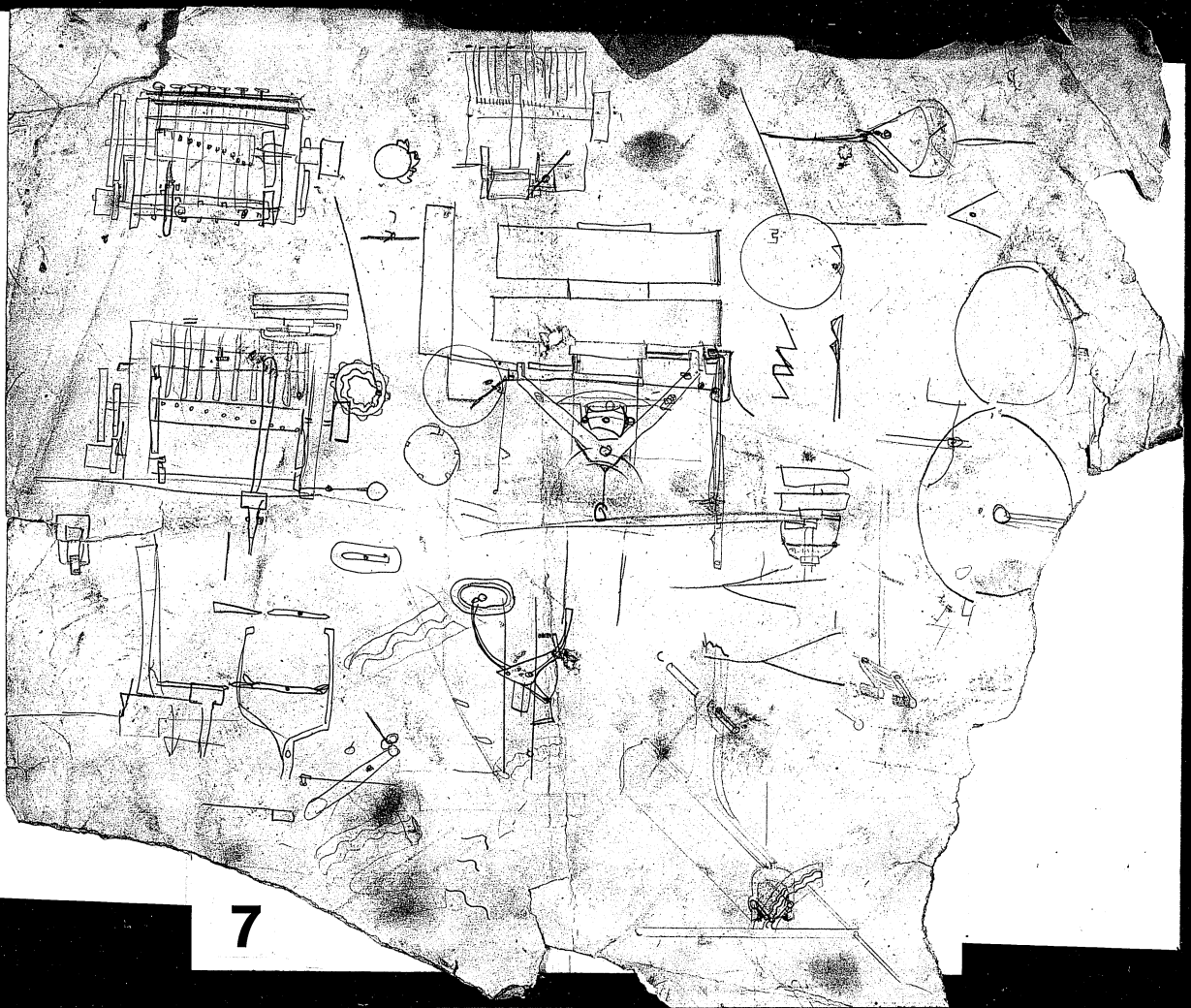


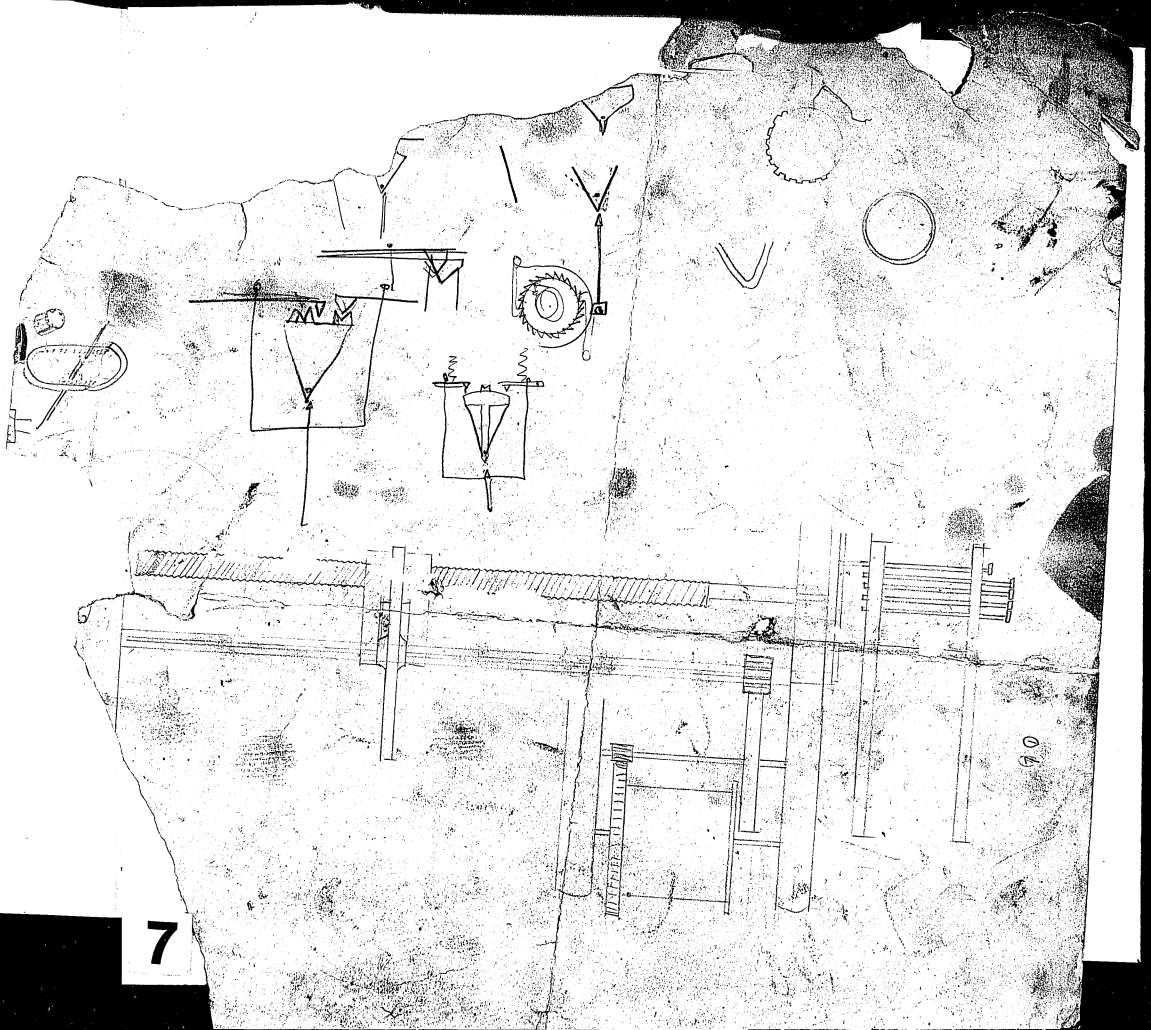
6

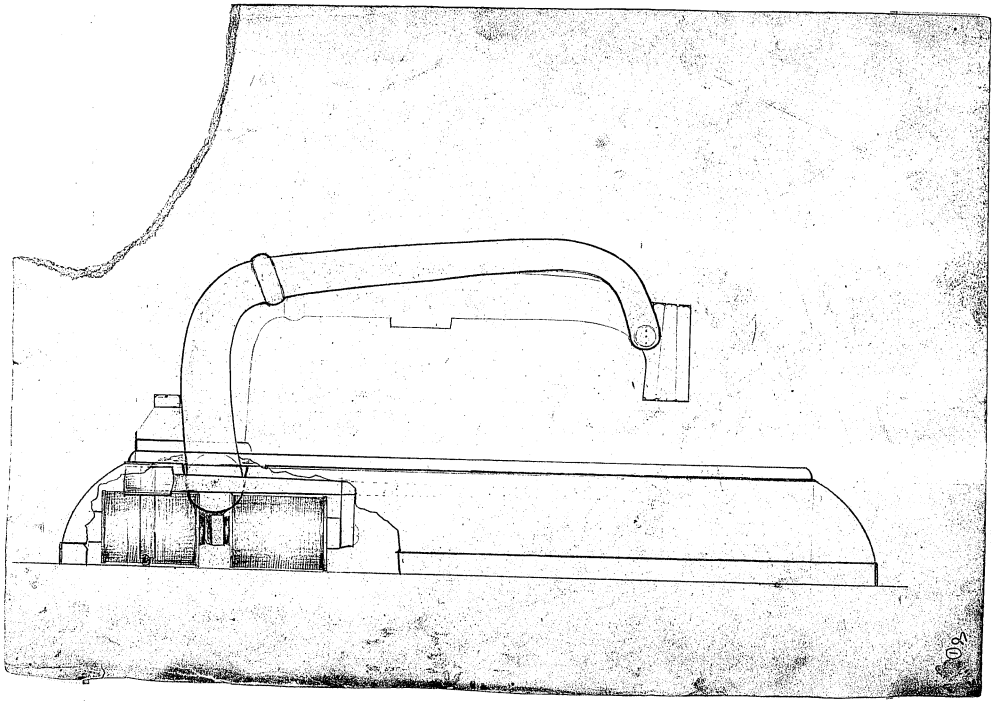
09



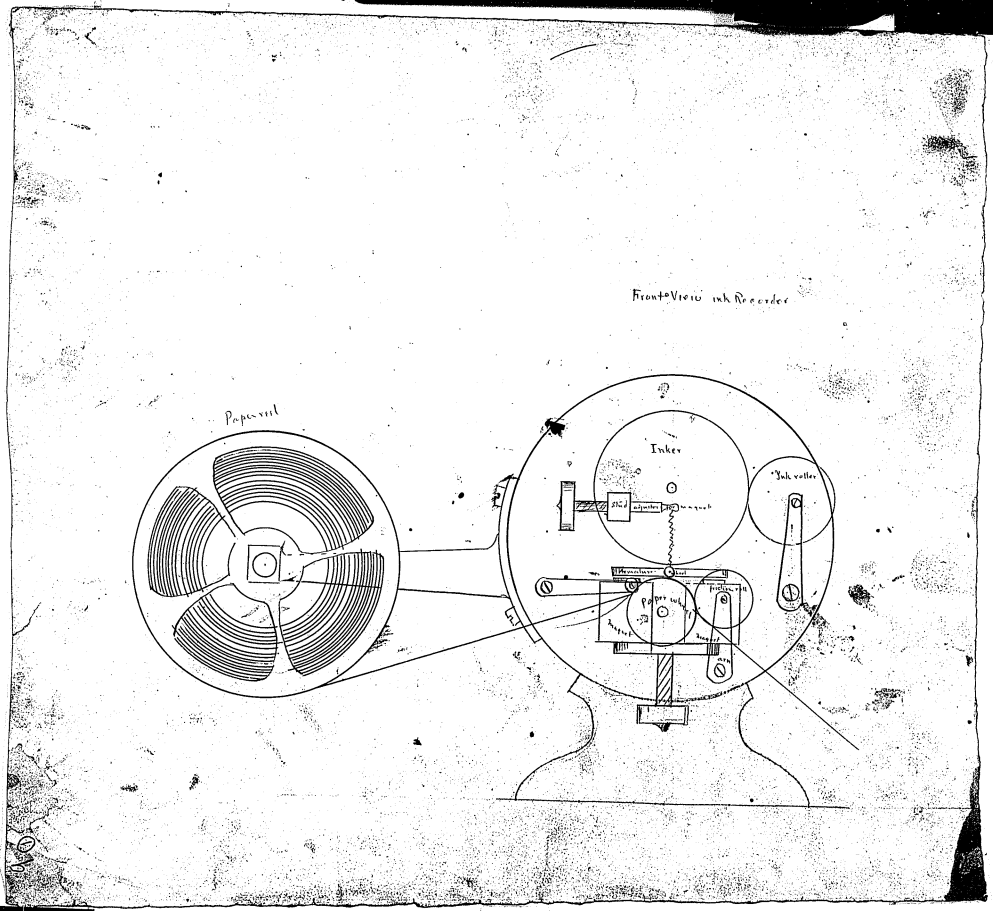
6

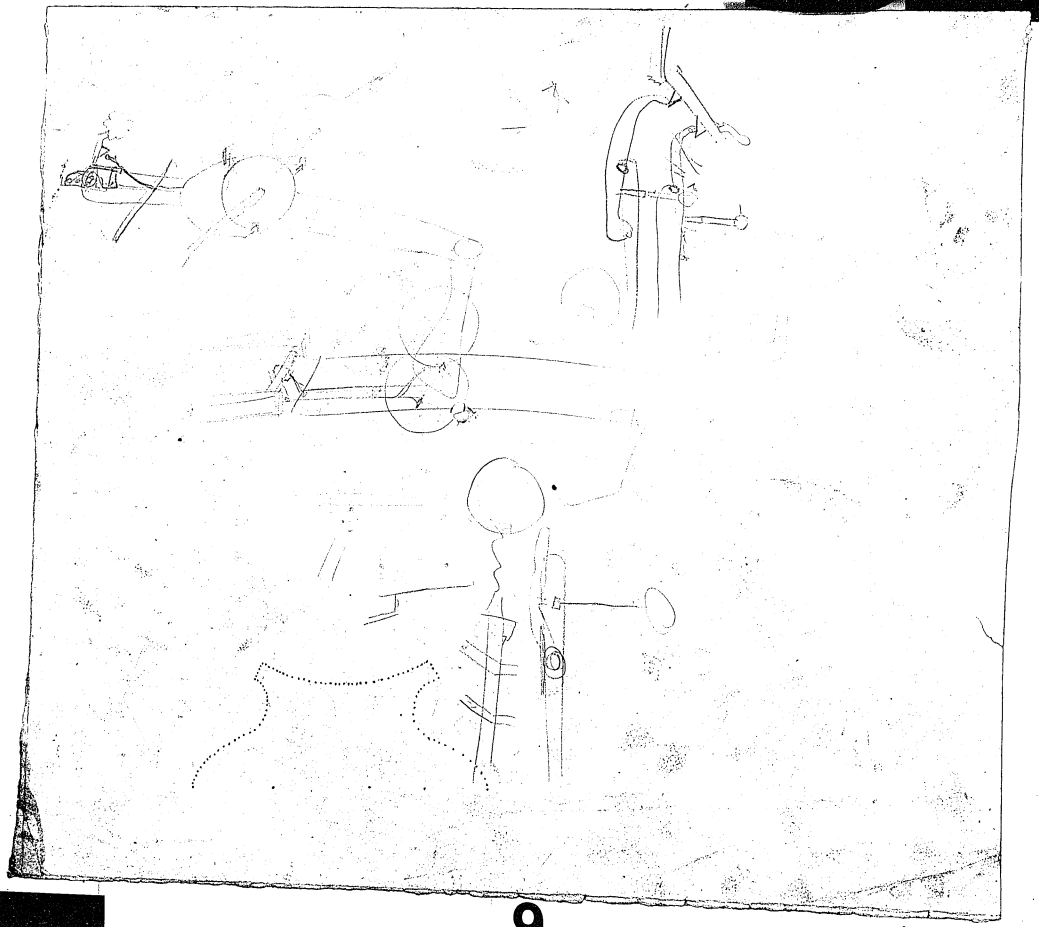


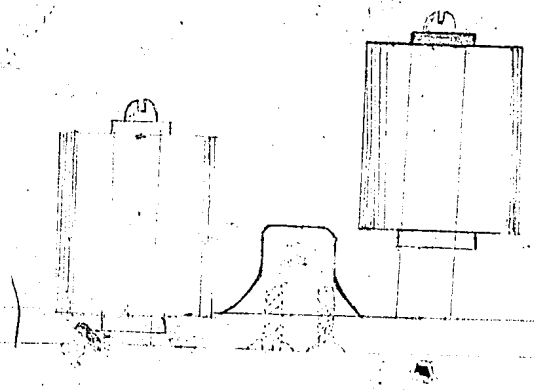


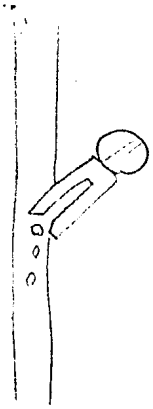


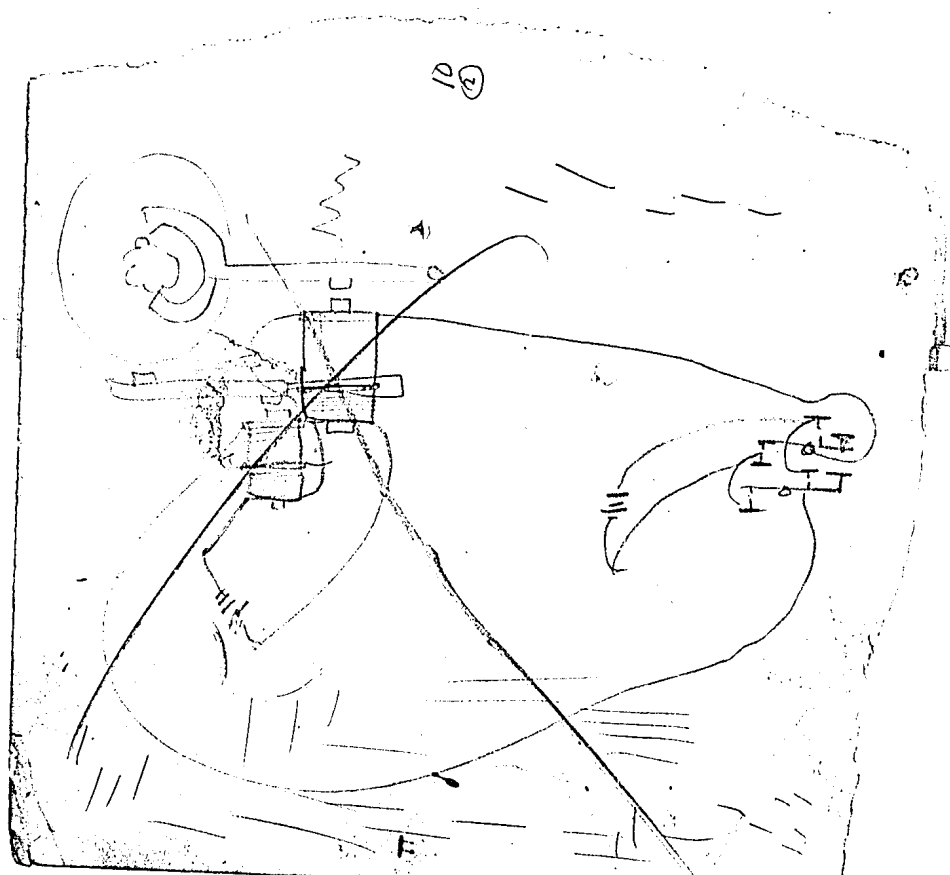
8

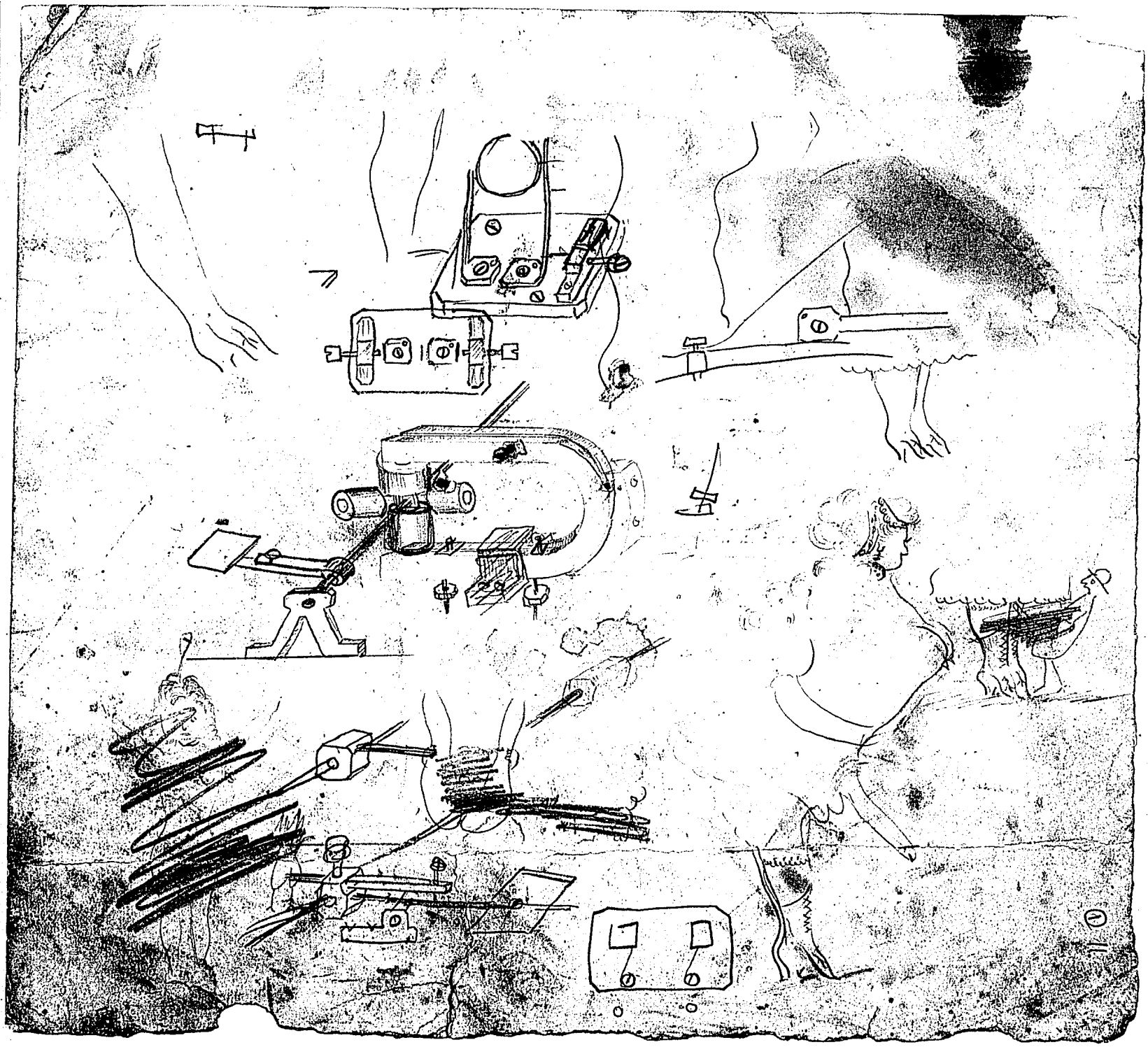

Front View ink Recorder
Paper roll
Inker
Ink roller
adjuster
Paper ink roller

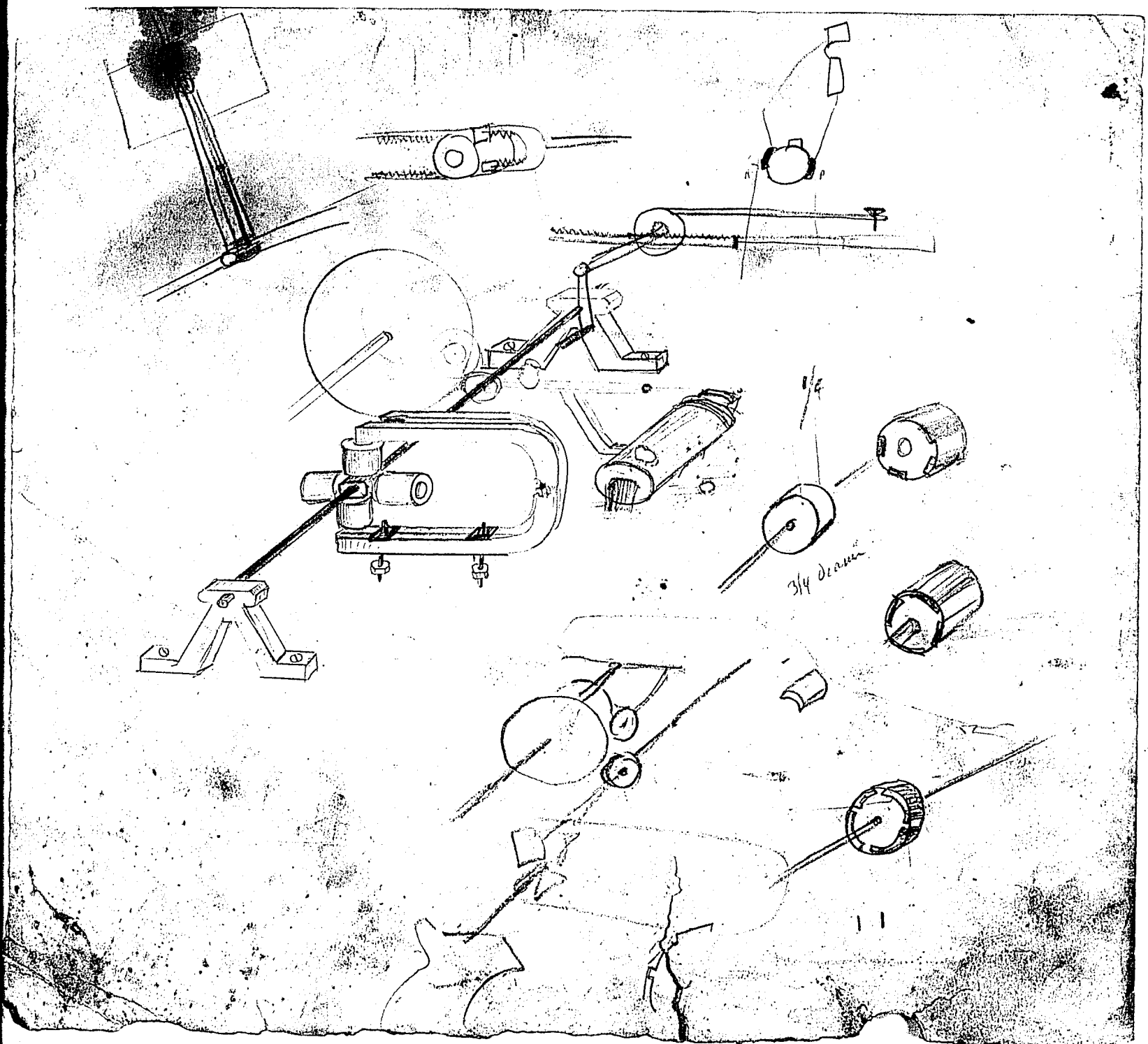




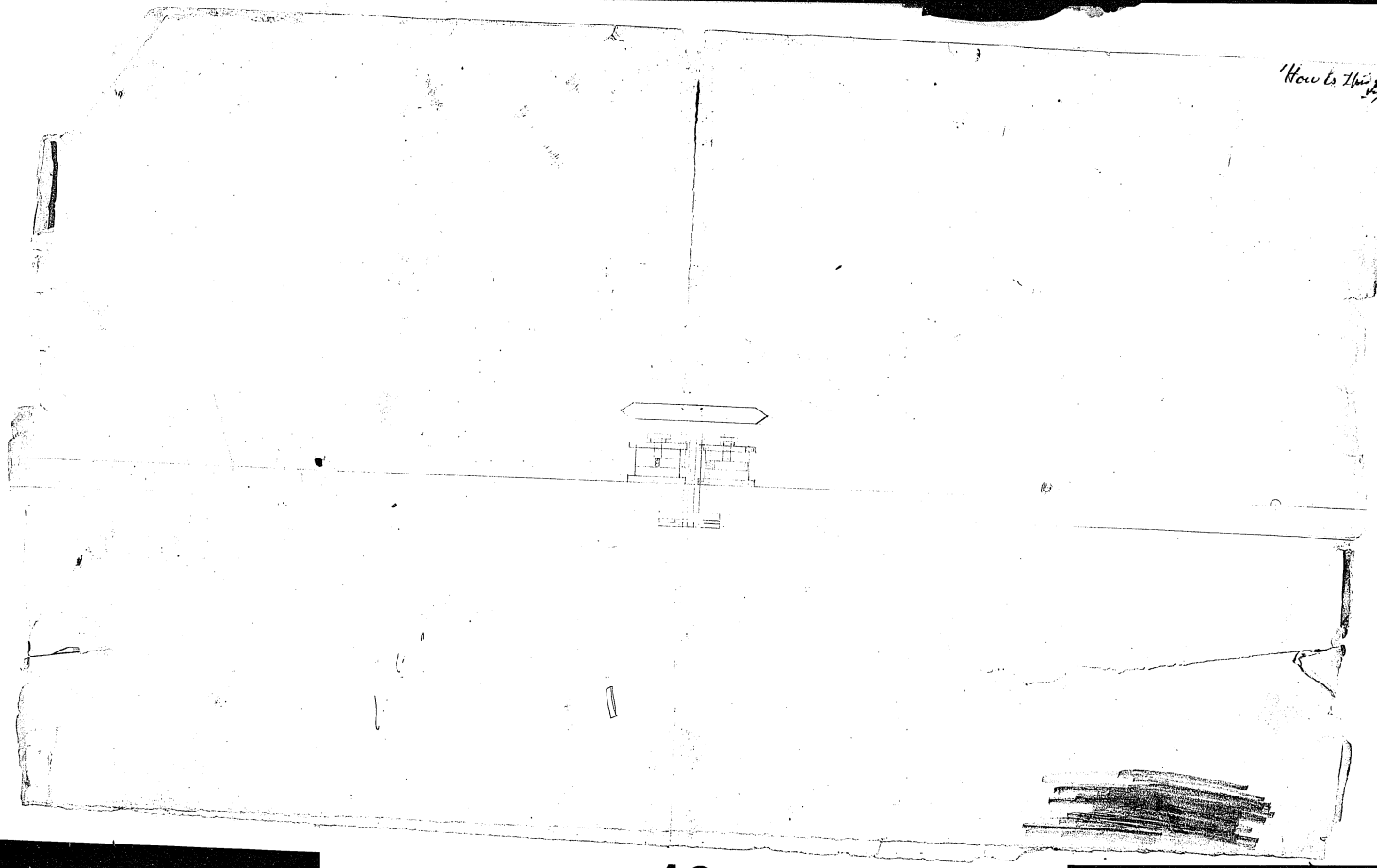


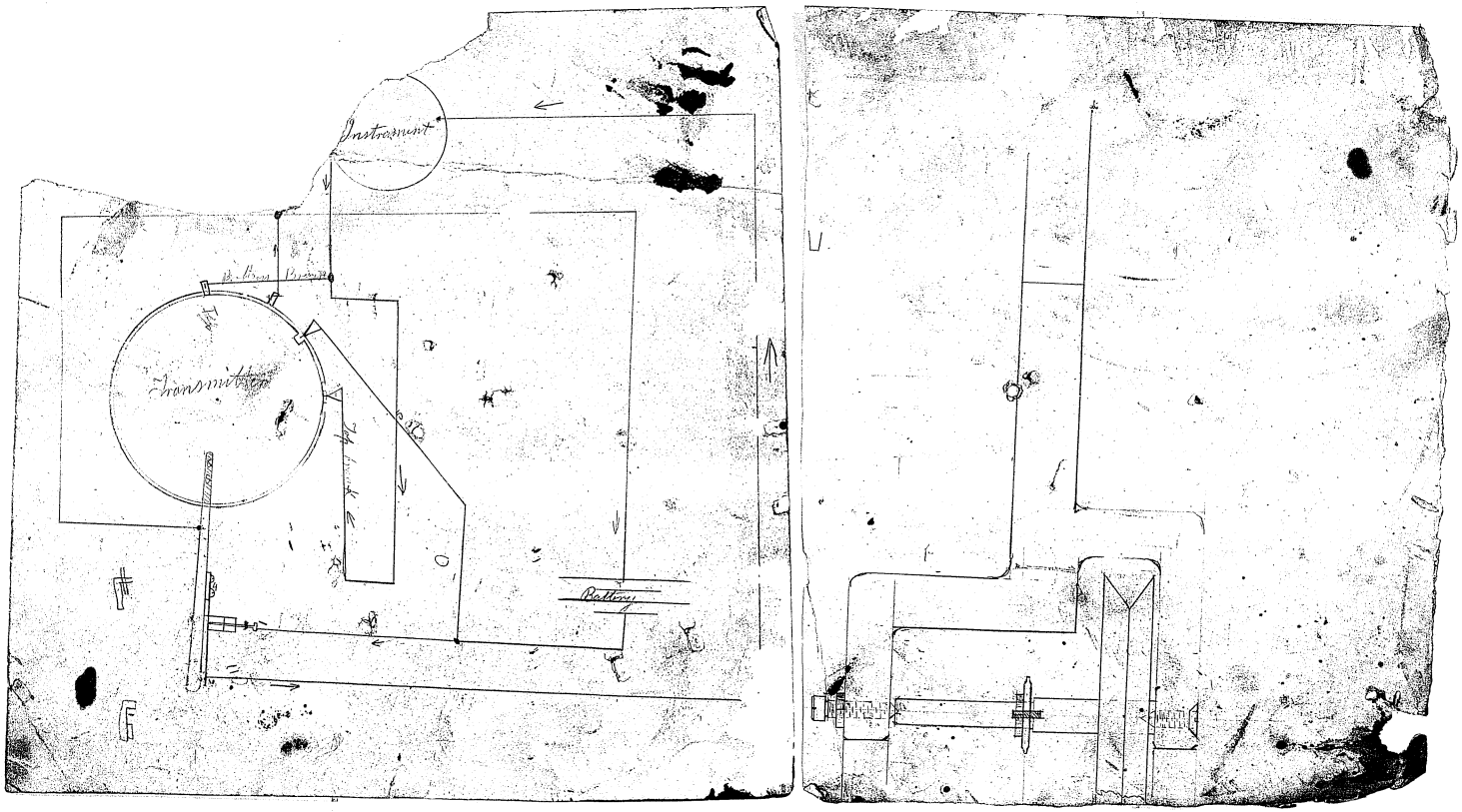


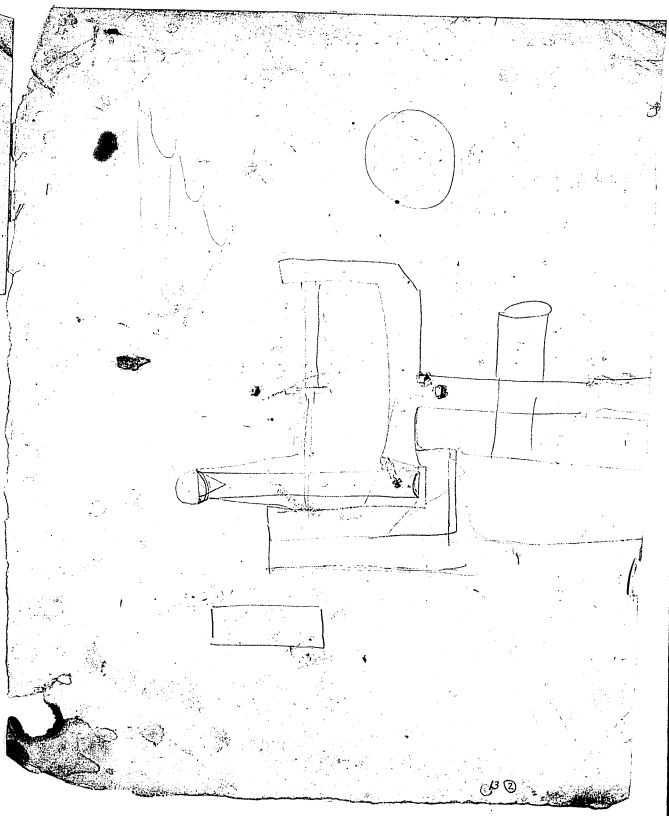


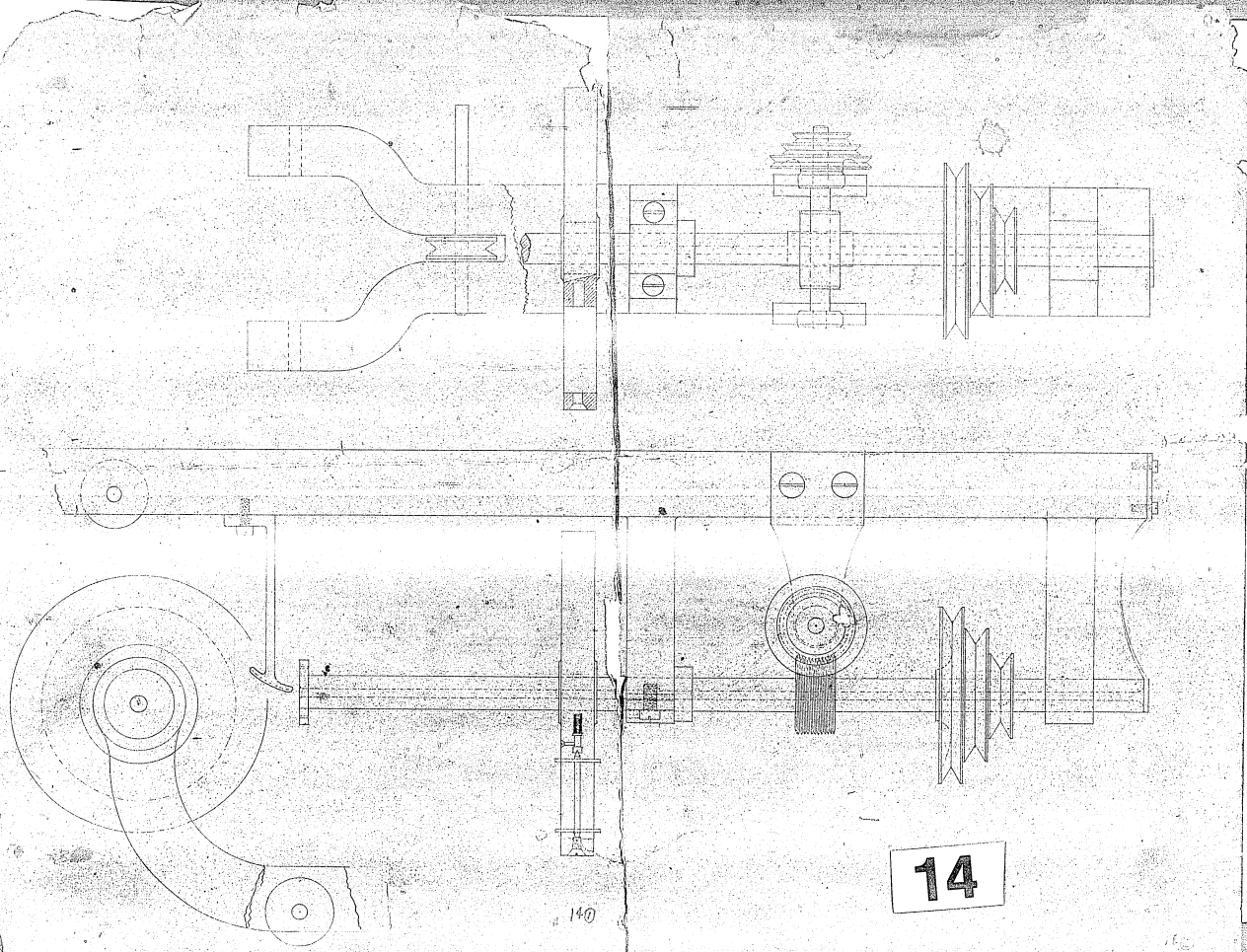

3/4 drawn

11

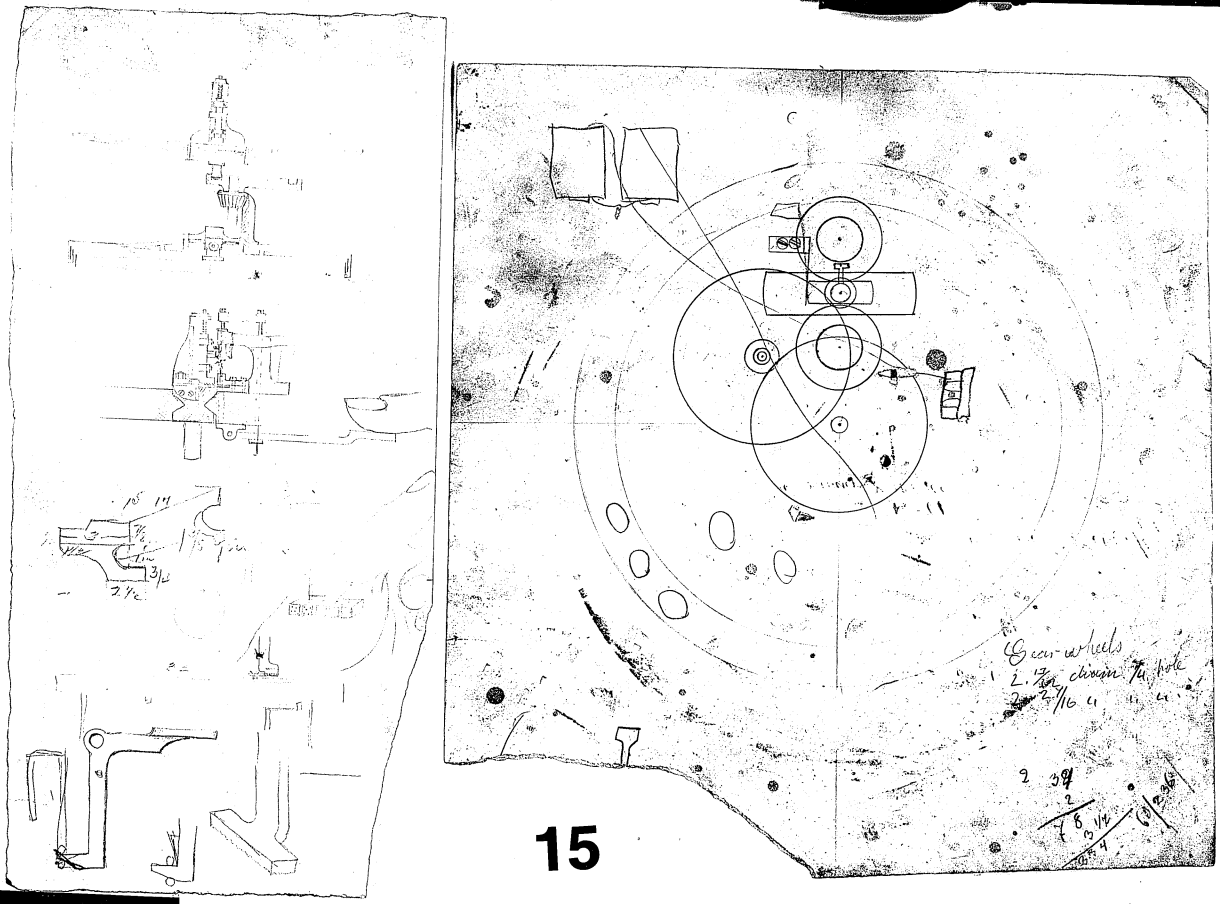



Instrument
Transmitter
Battery





14



15

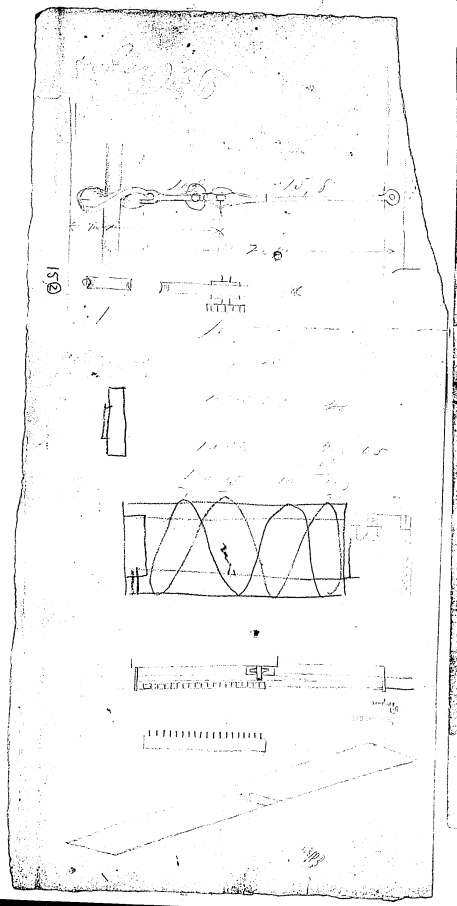


Fig 10

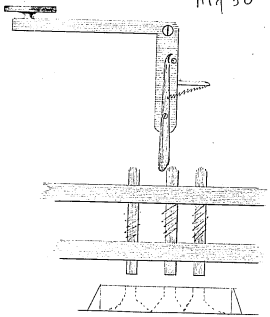


Fig 12

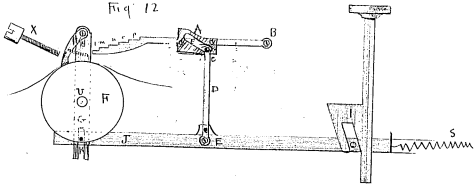
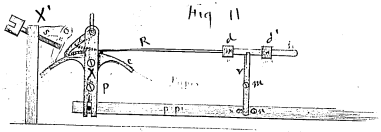
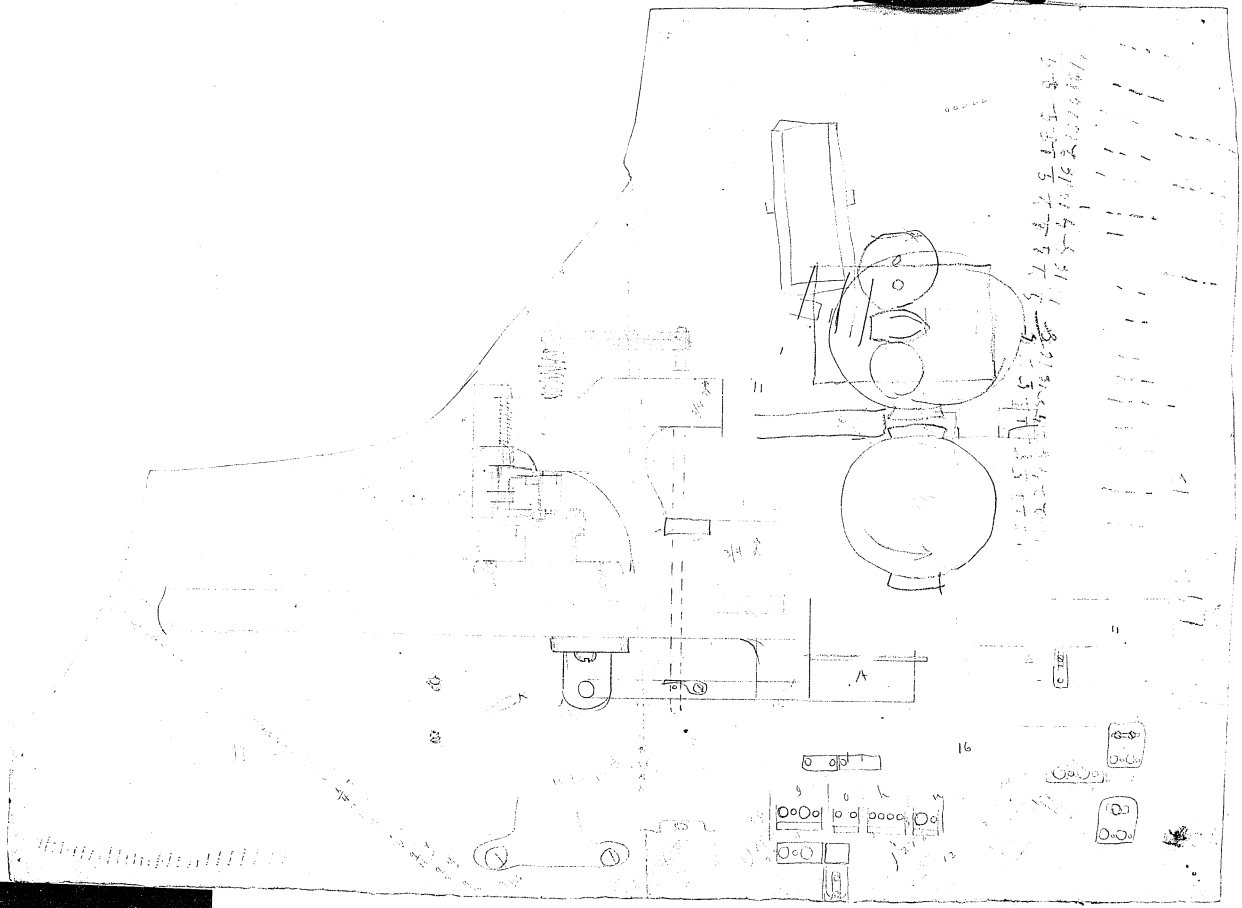
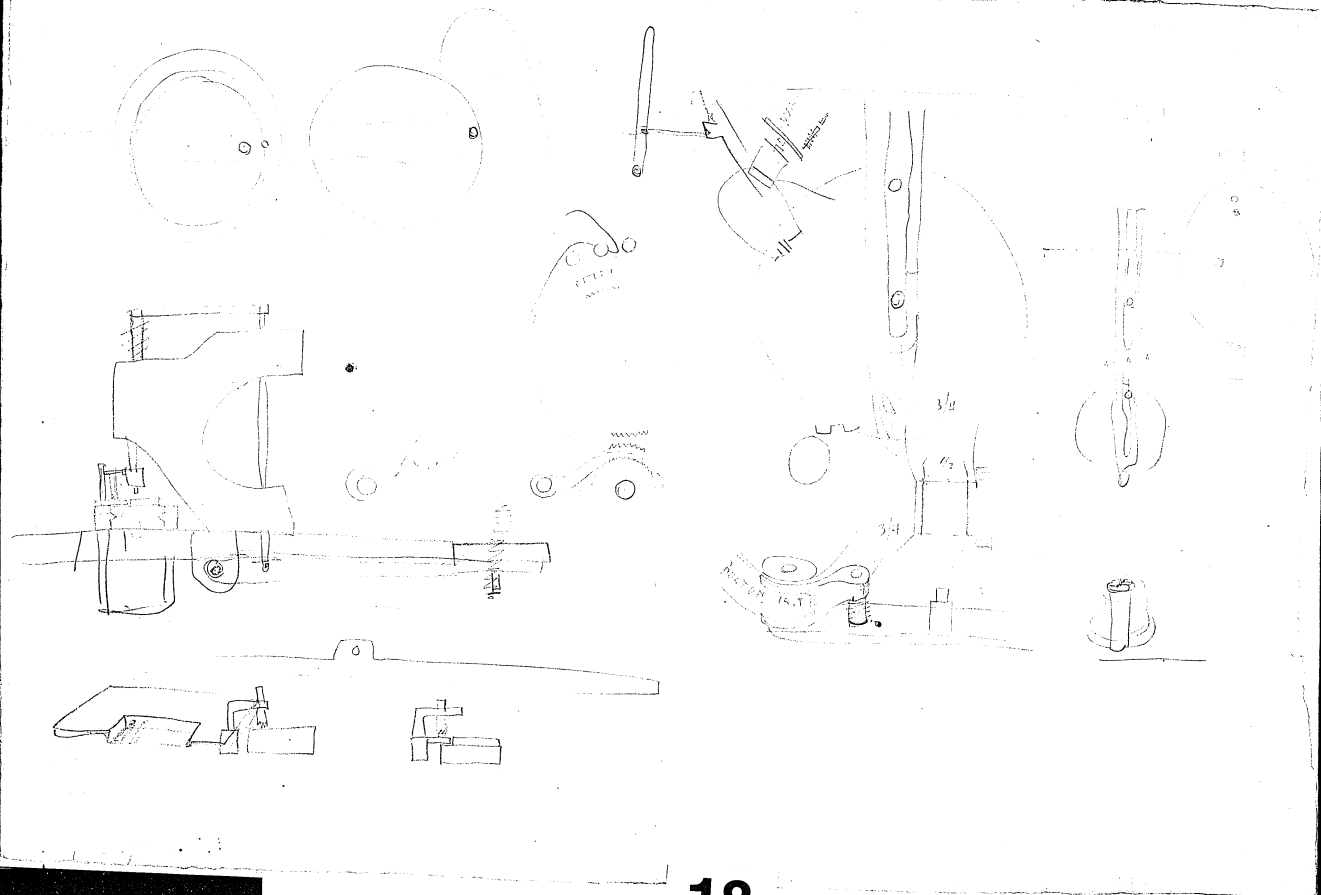


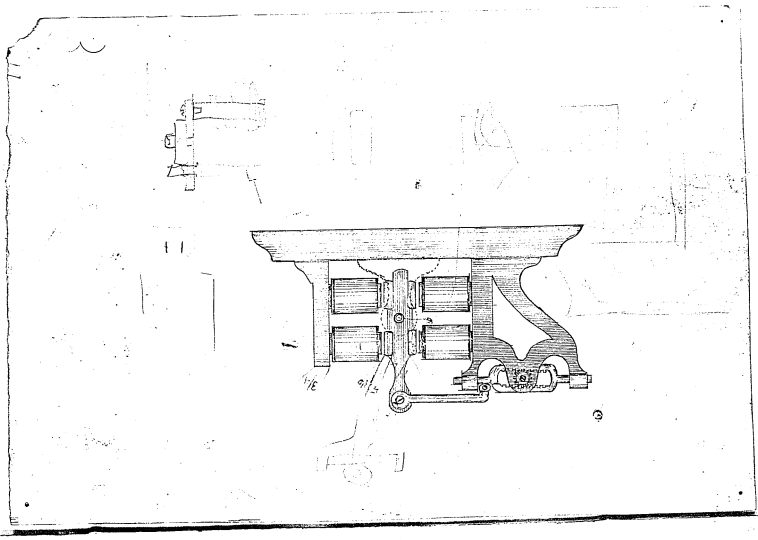
Fig 11

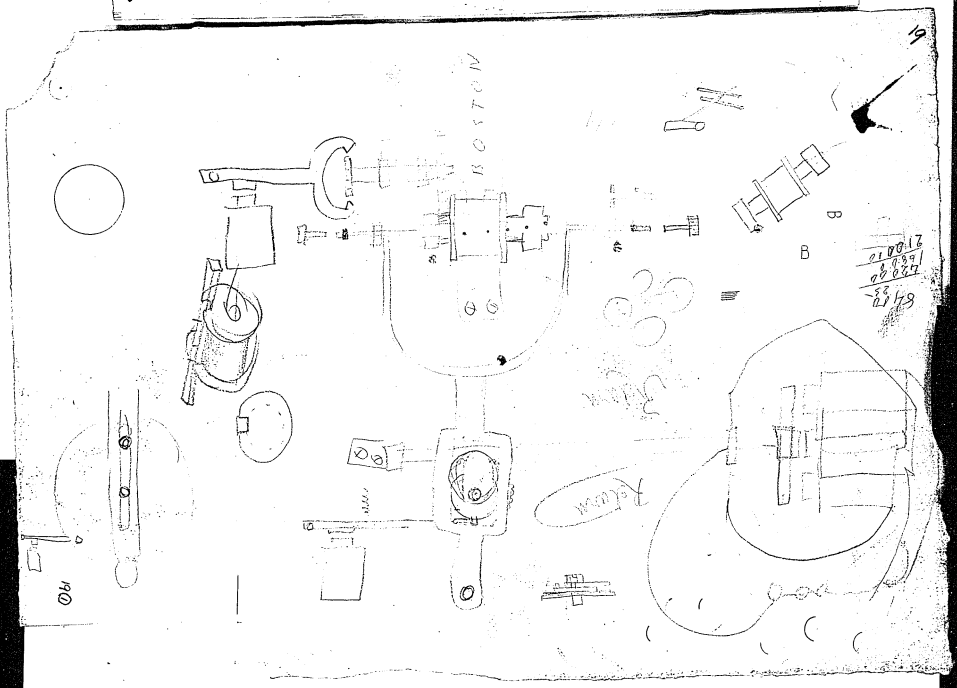


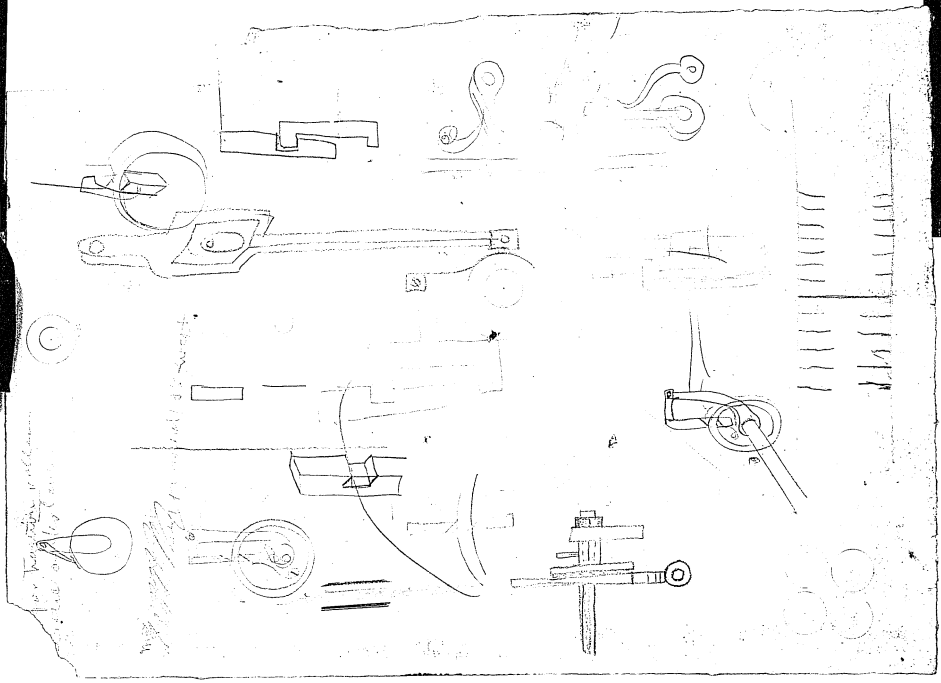
160

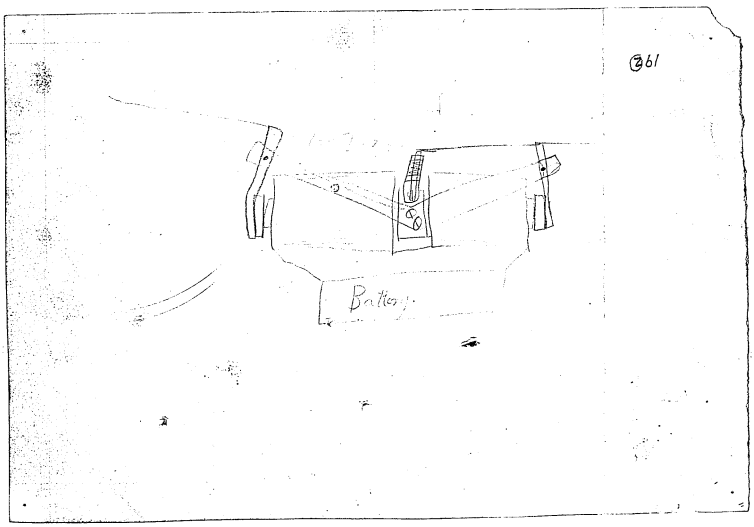


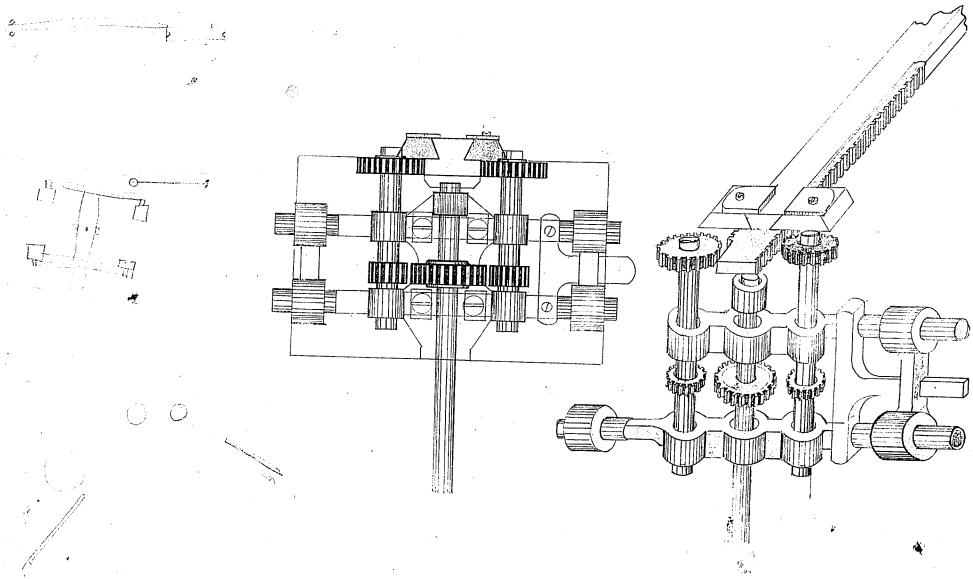


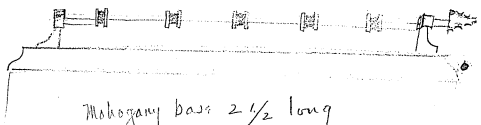






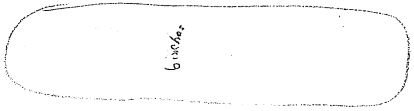

361
Battery



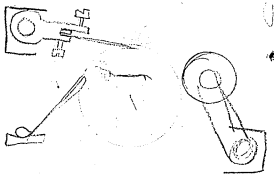


Mahogany base 2 1/2 long

inch 1/4 or 1/2 stiff

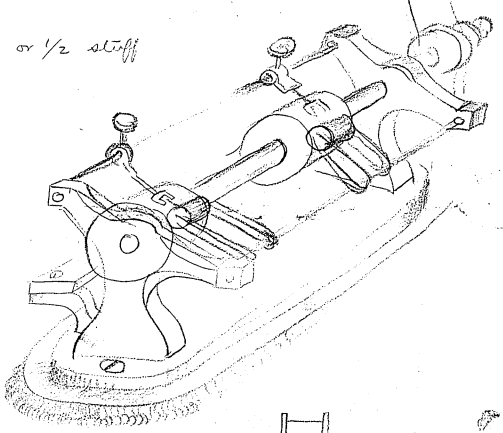


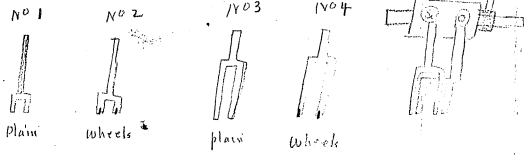
6 inches

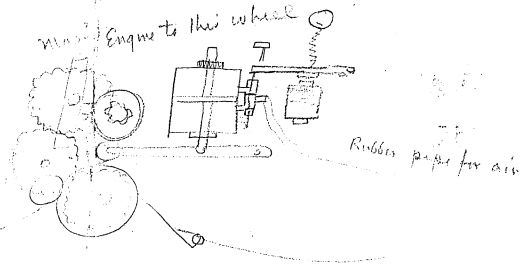


Power Transmitter

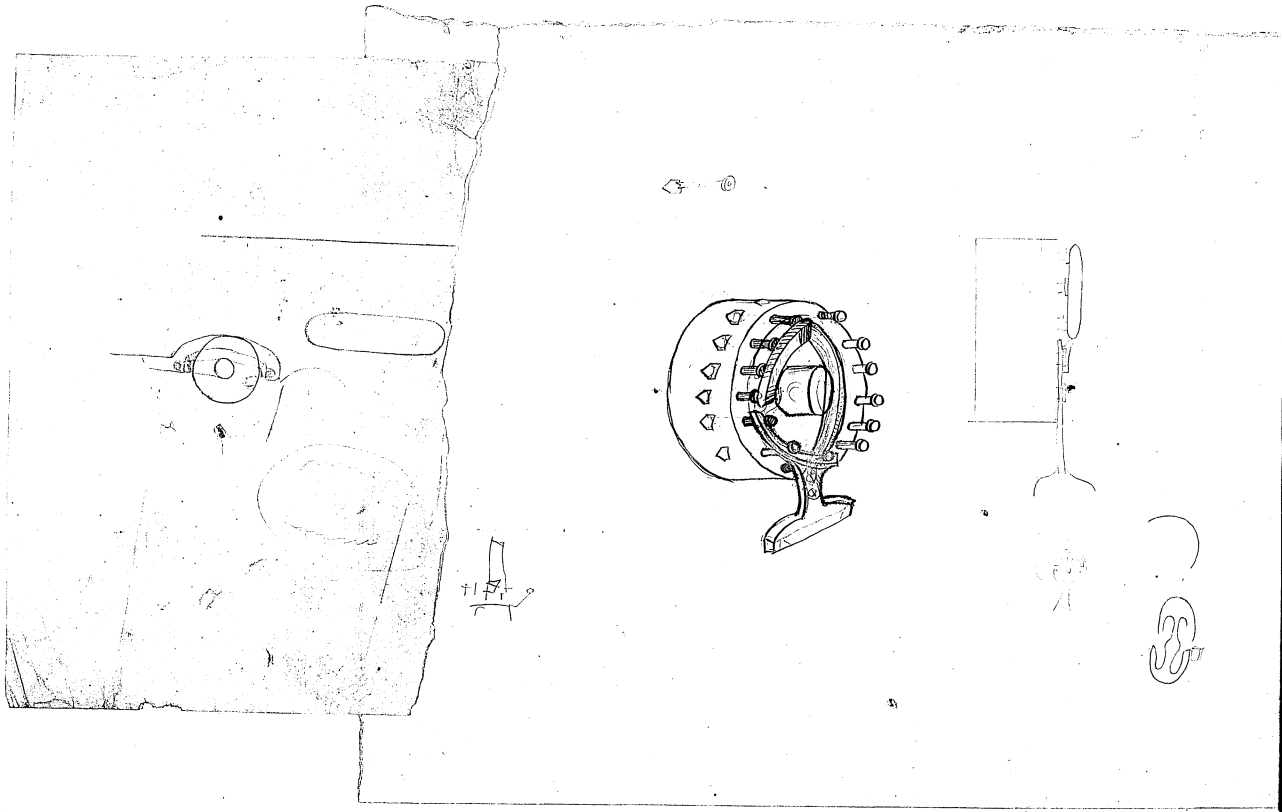
5 Wheel

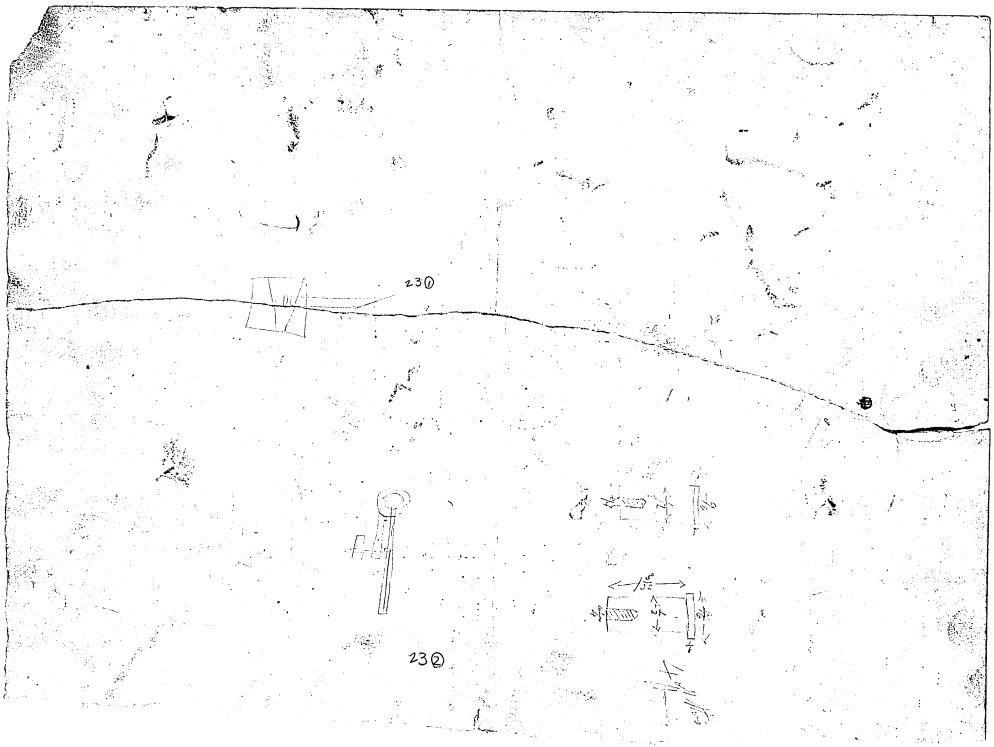


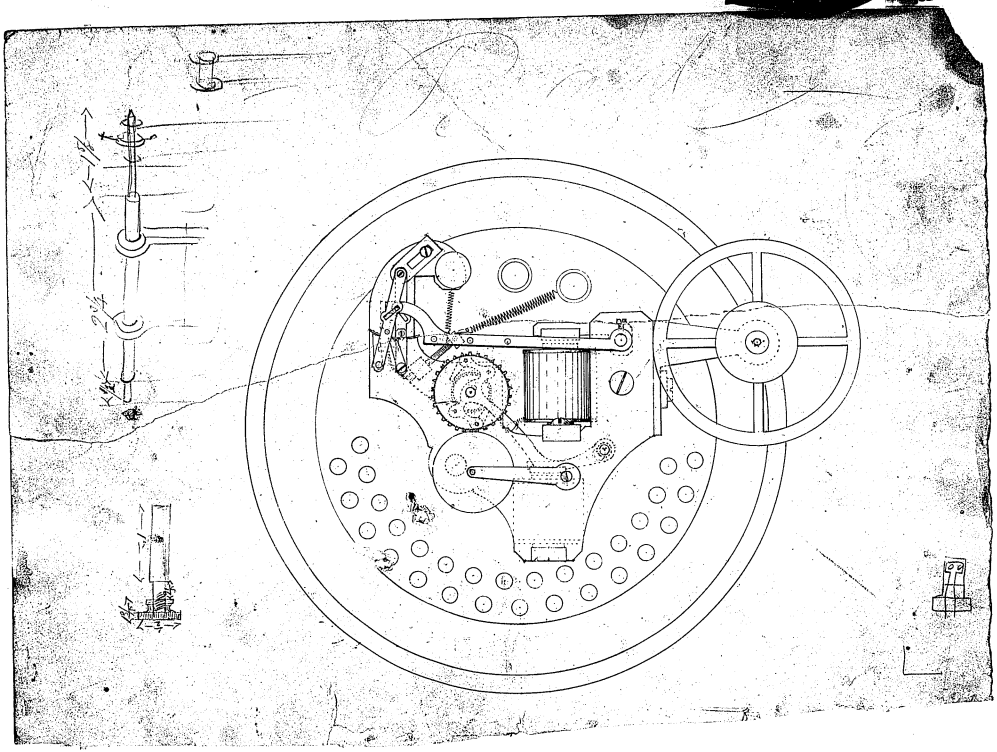


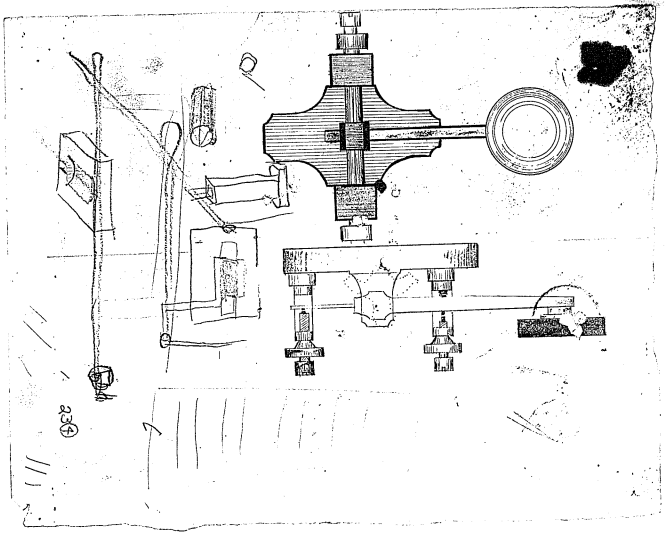


Ink marker Run by air

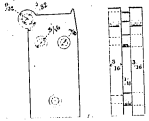



23①
23②





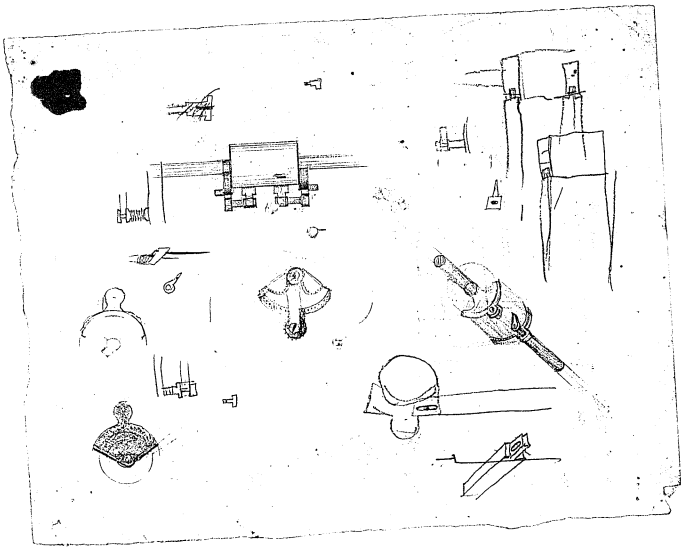
Filing Jig.
American Telegraph Co.
Scale full size.

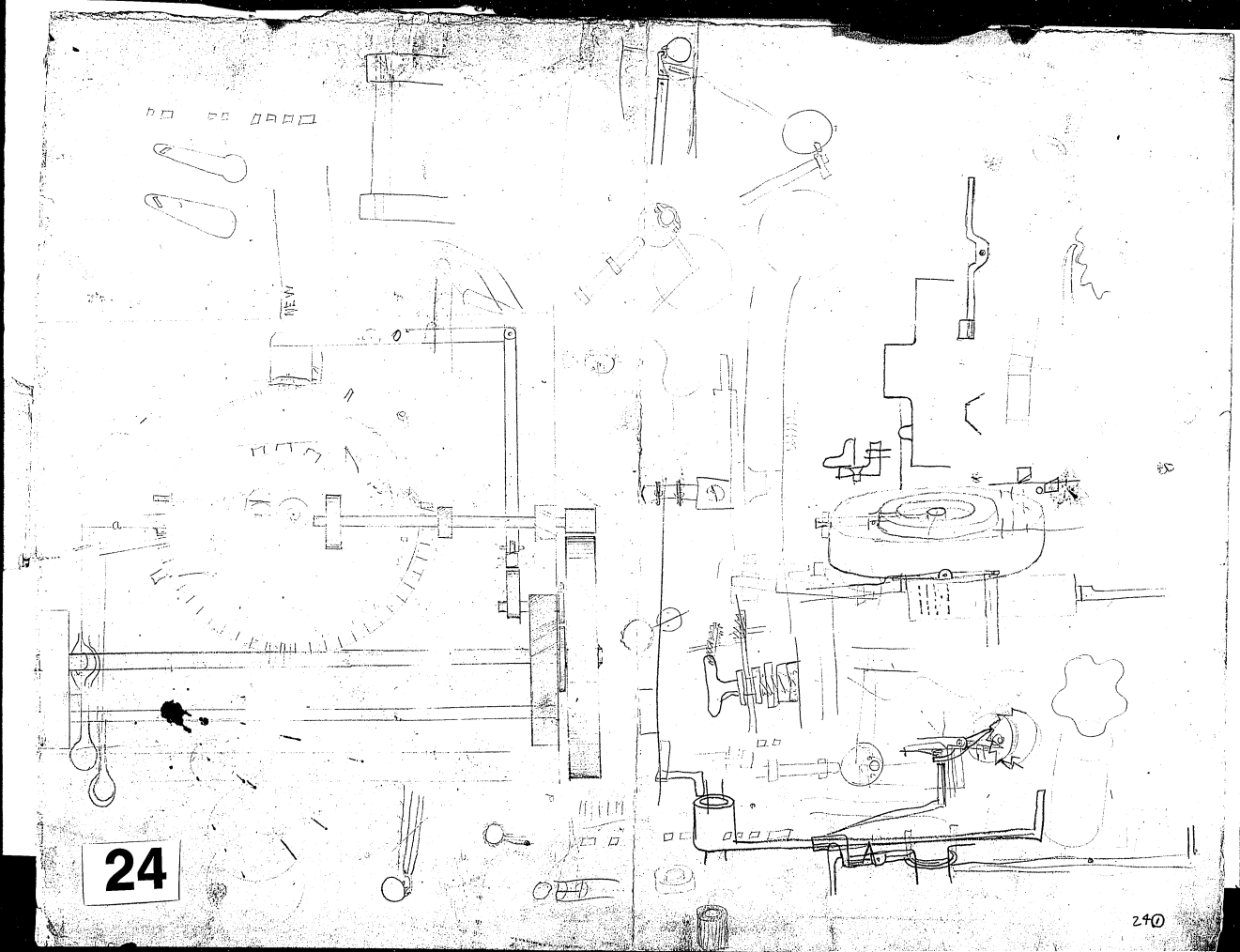


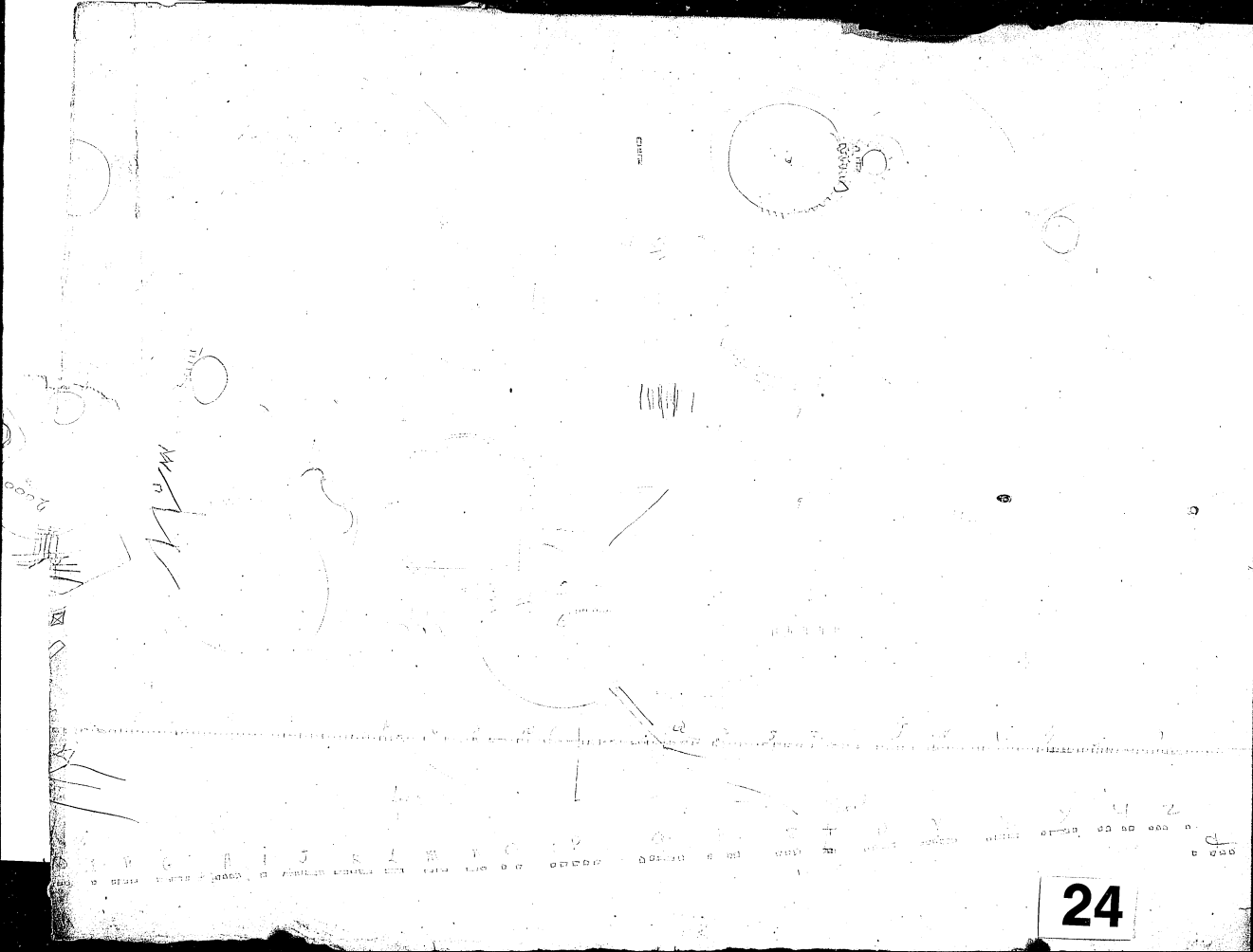
23

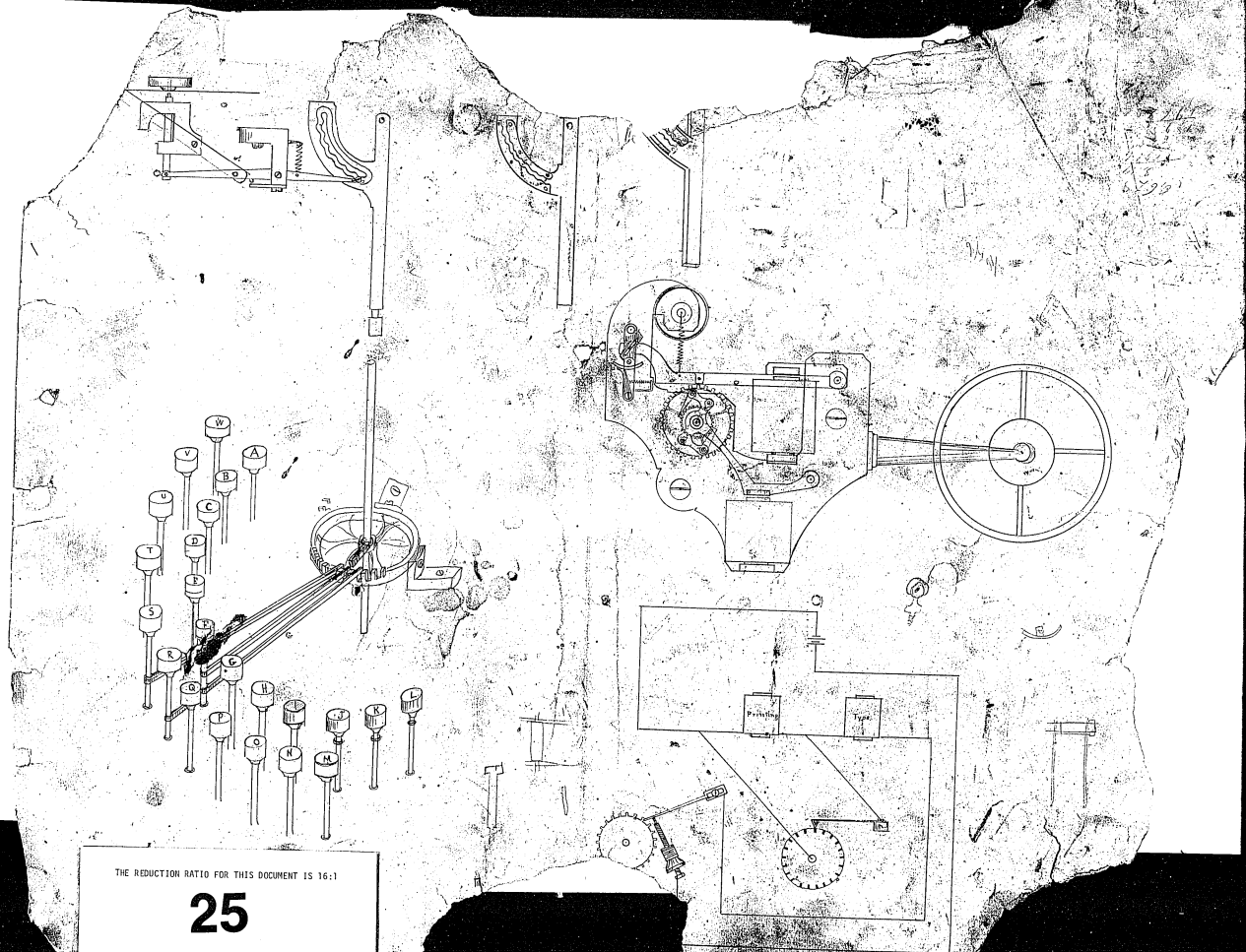
23A

23B

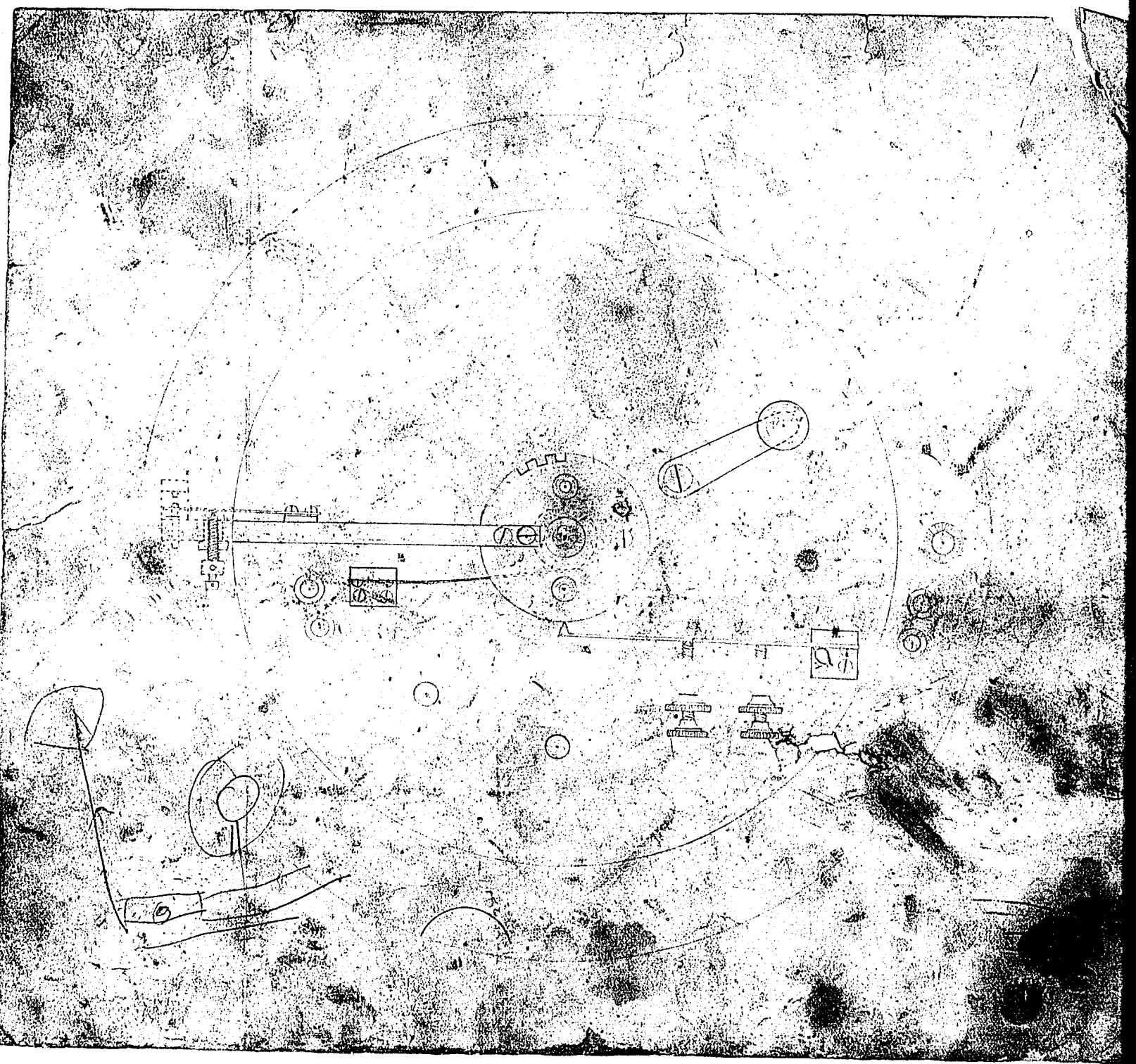


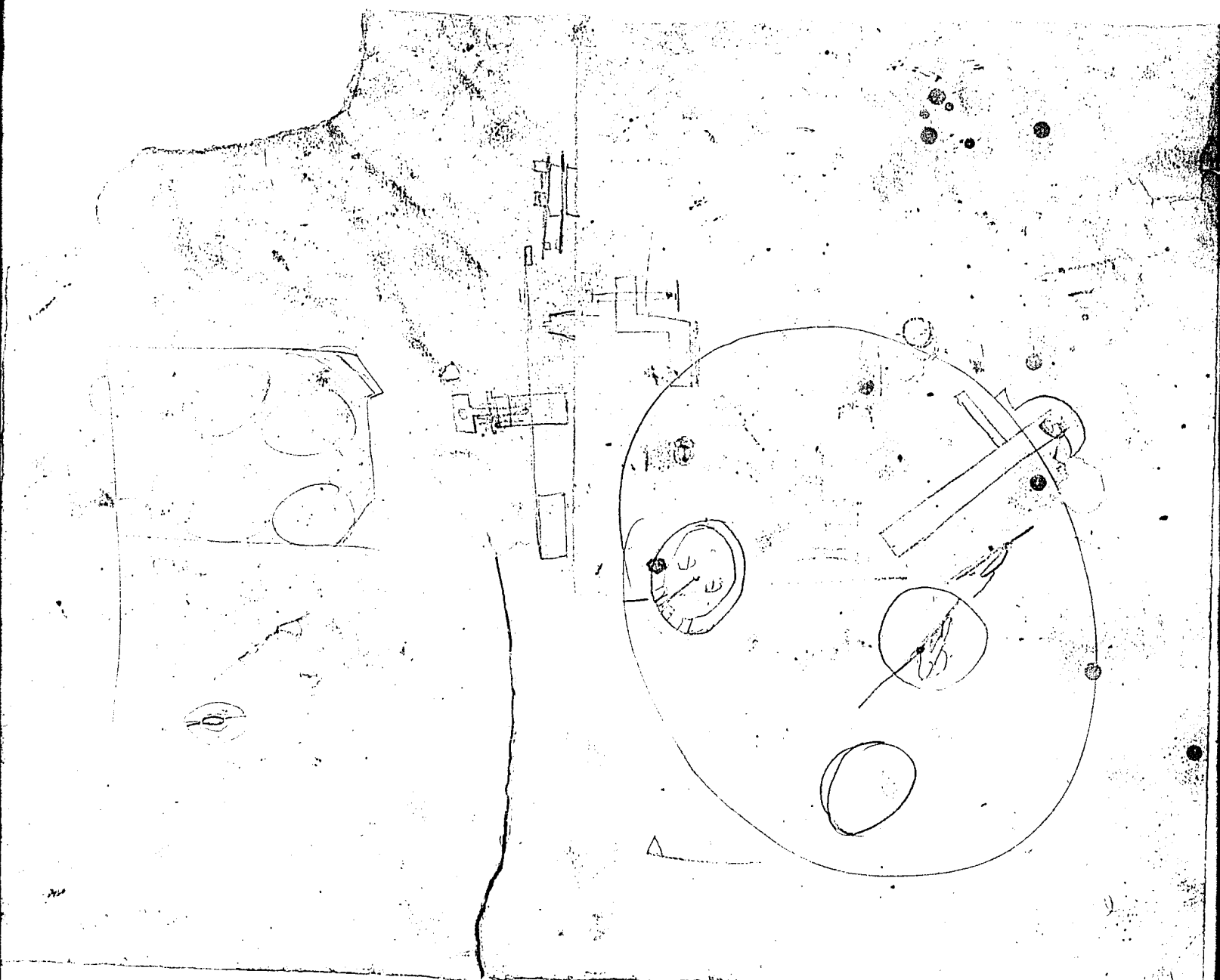

24



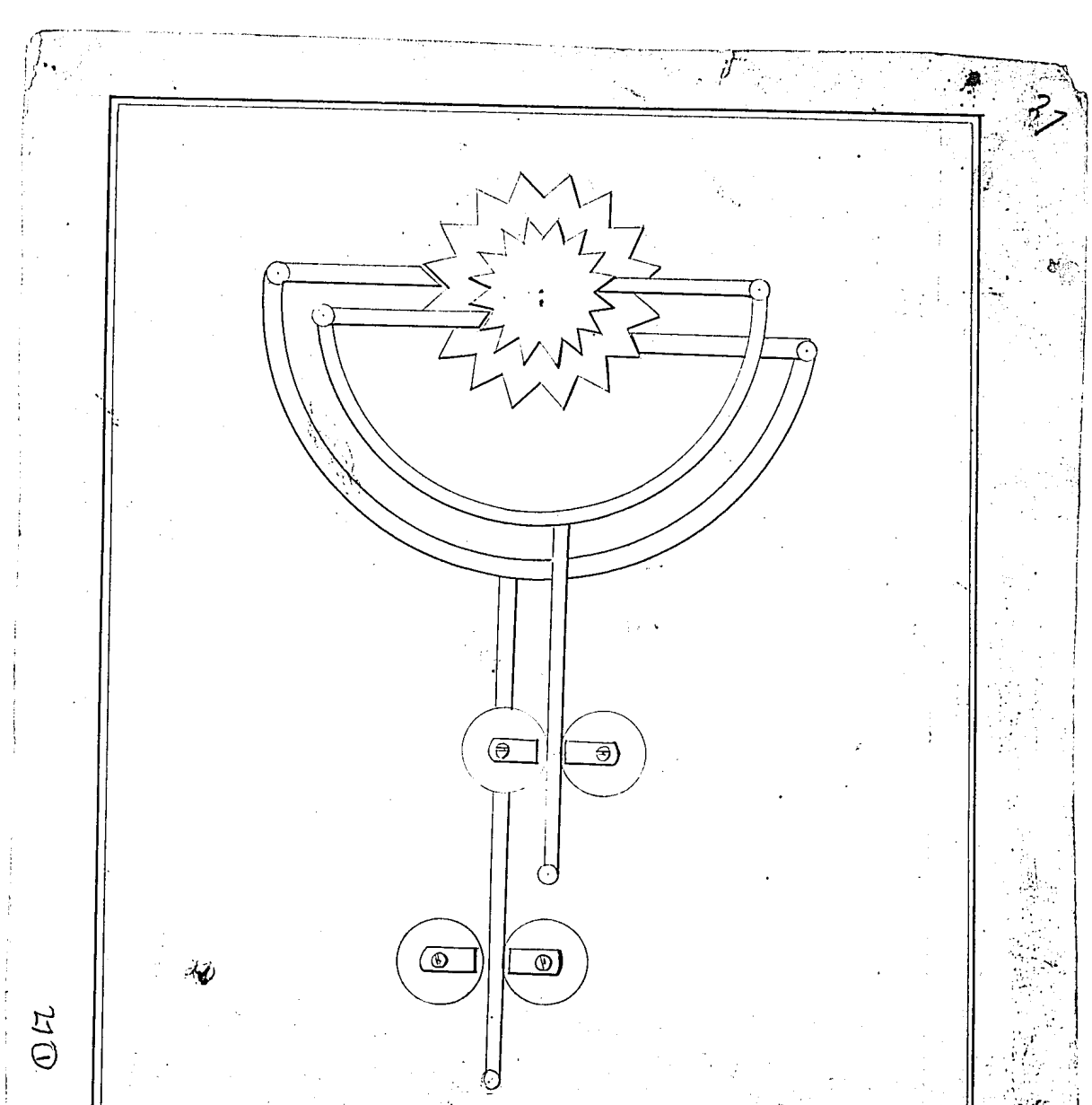


THE REDUCTION RATIO FOR THIS DOCUMENT IS 16:1

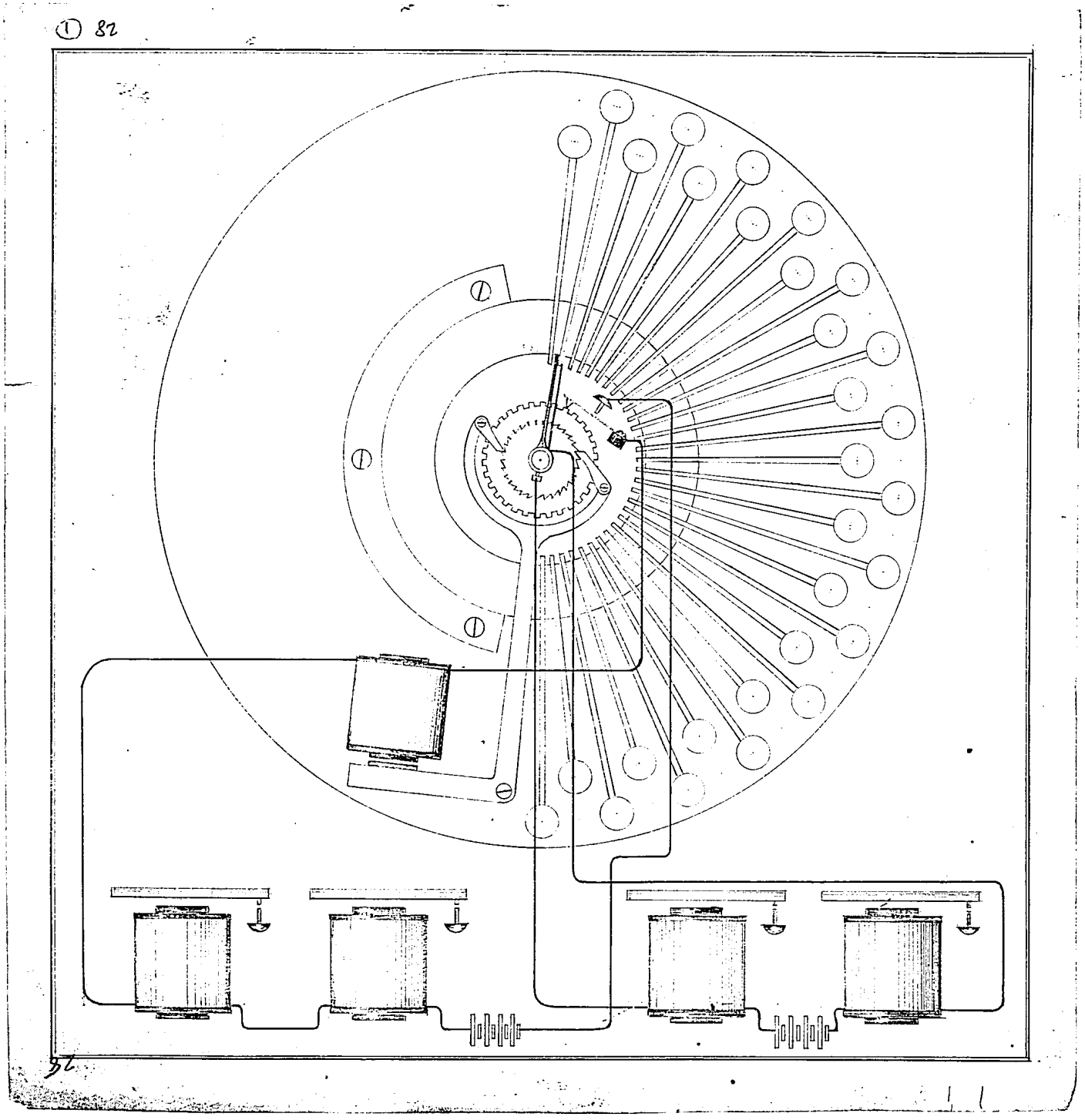




26 ②

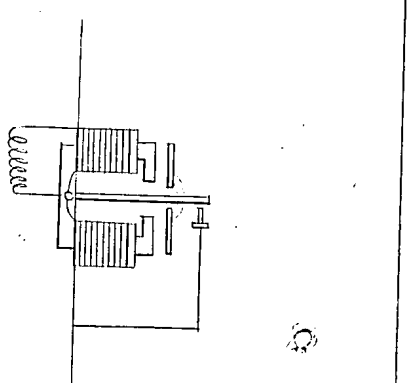


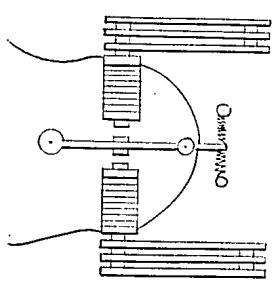
27

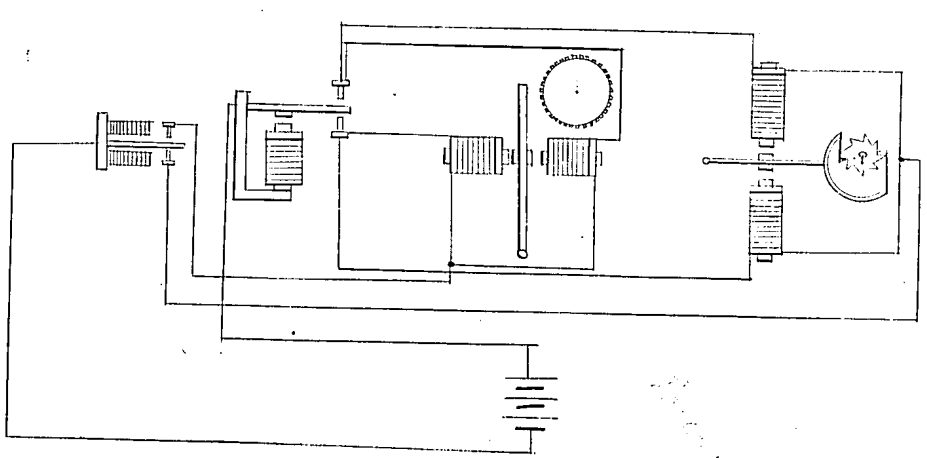


28
Cable
R
P
T
S

29

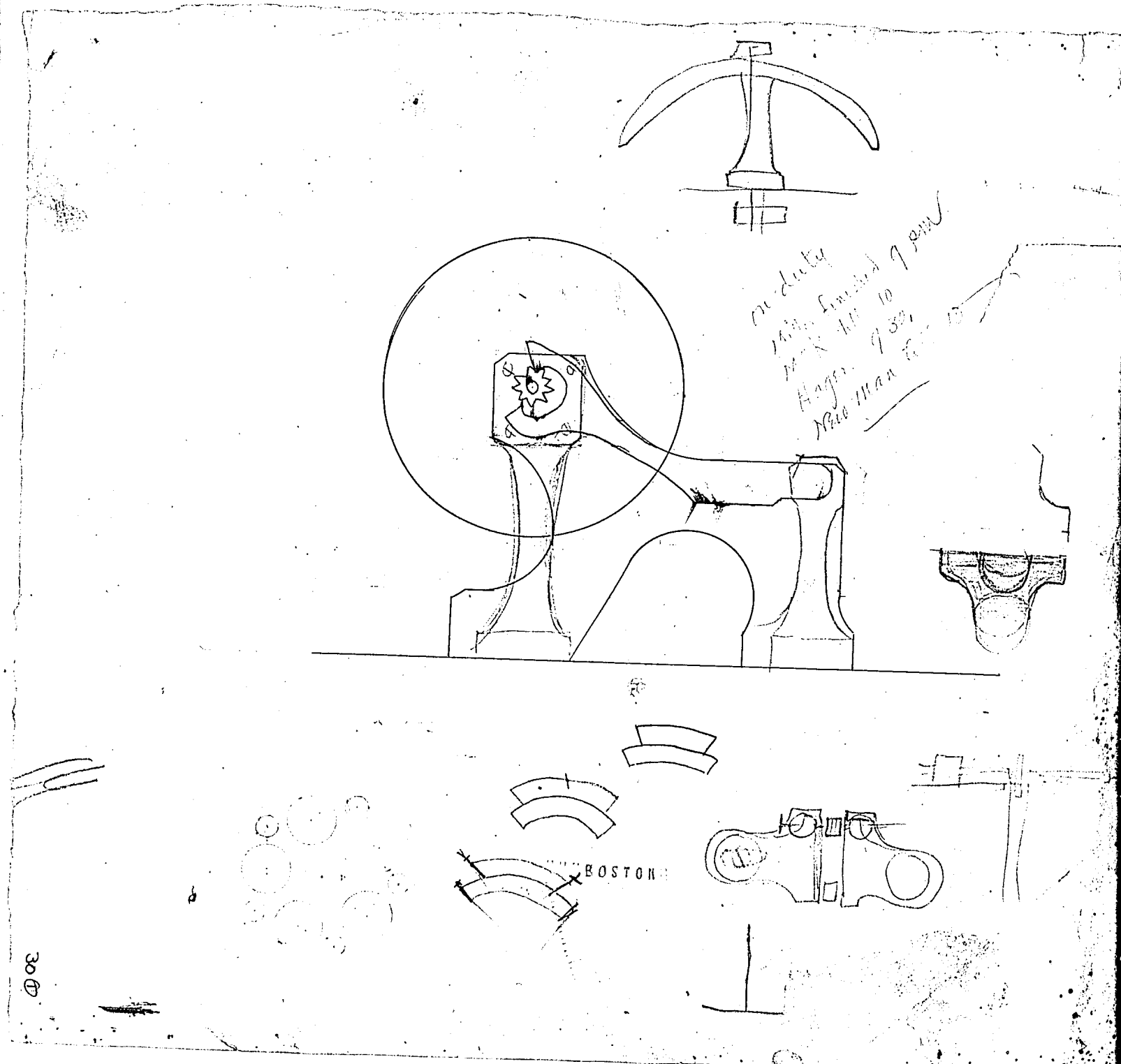


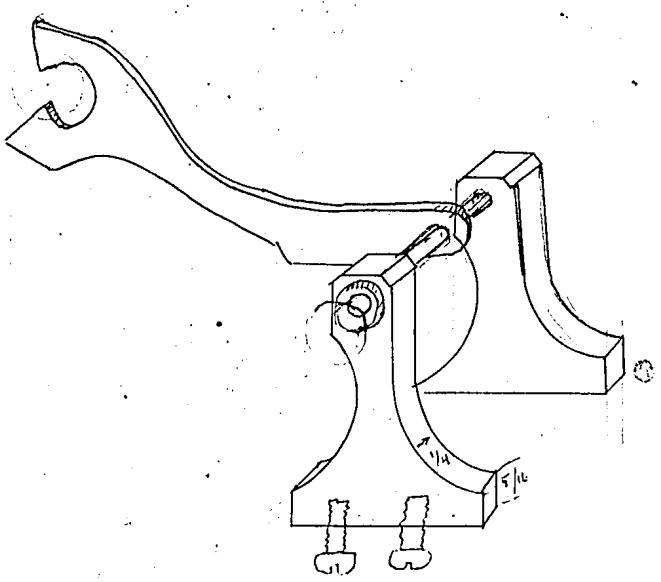


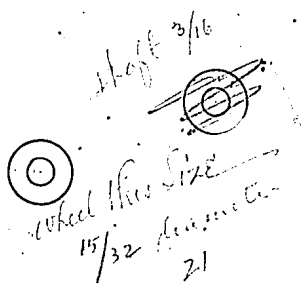


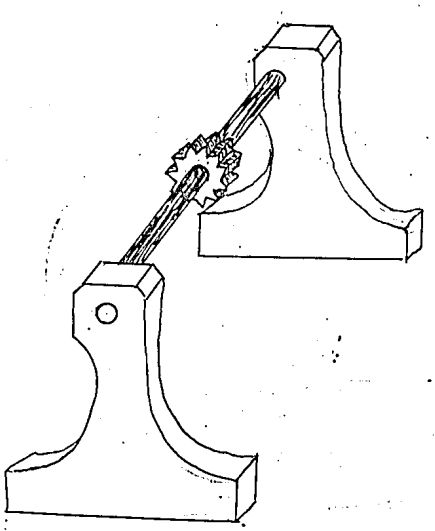
Double Magnetic [illegible]

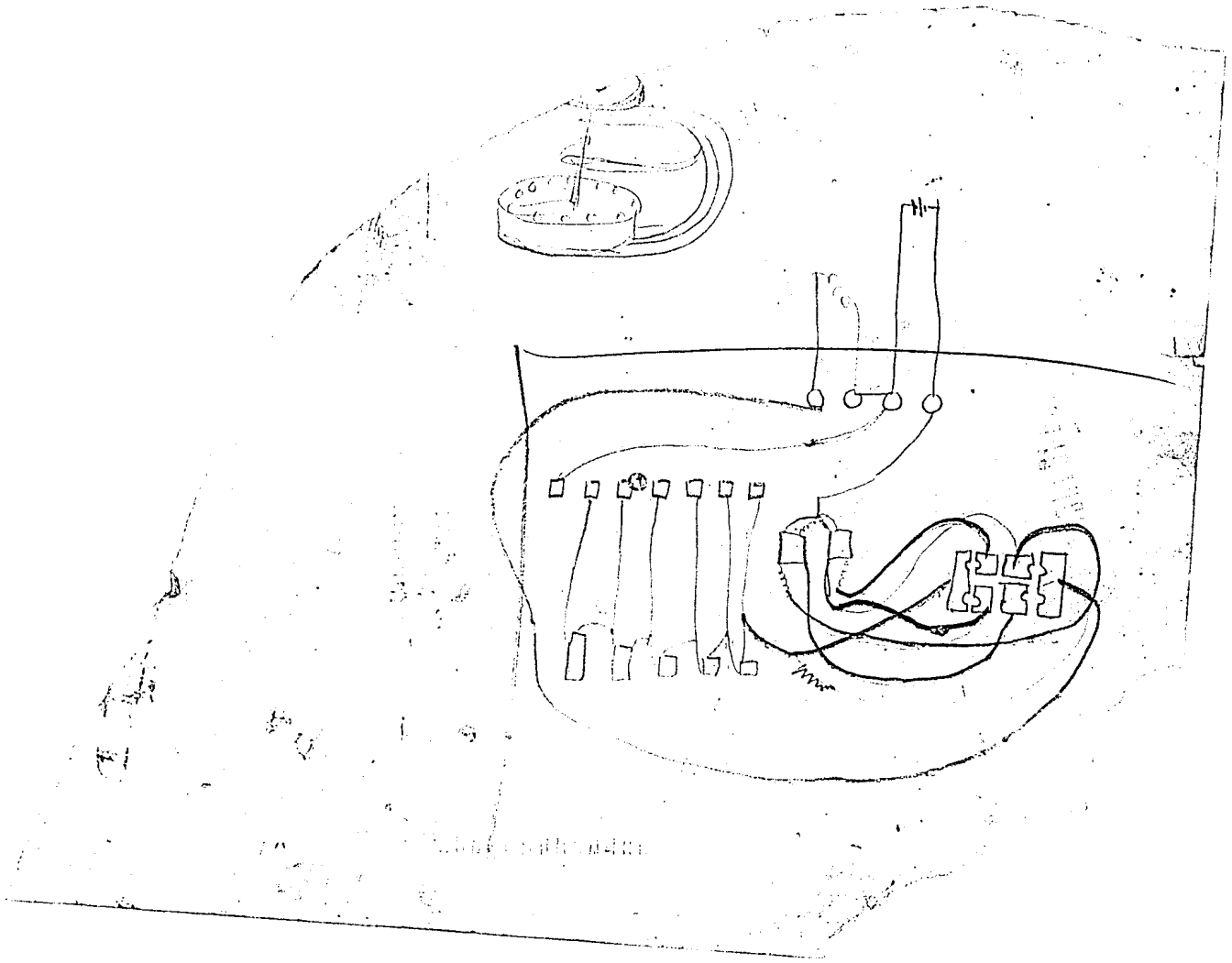
29 ①

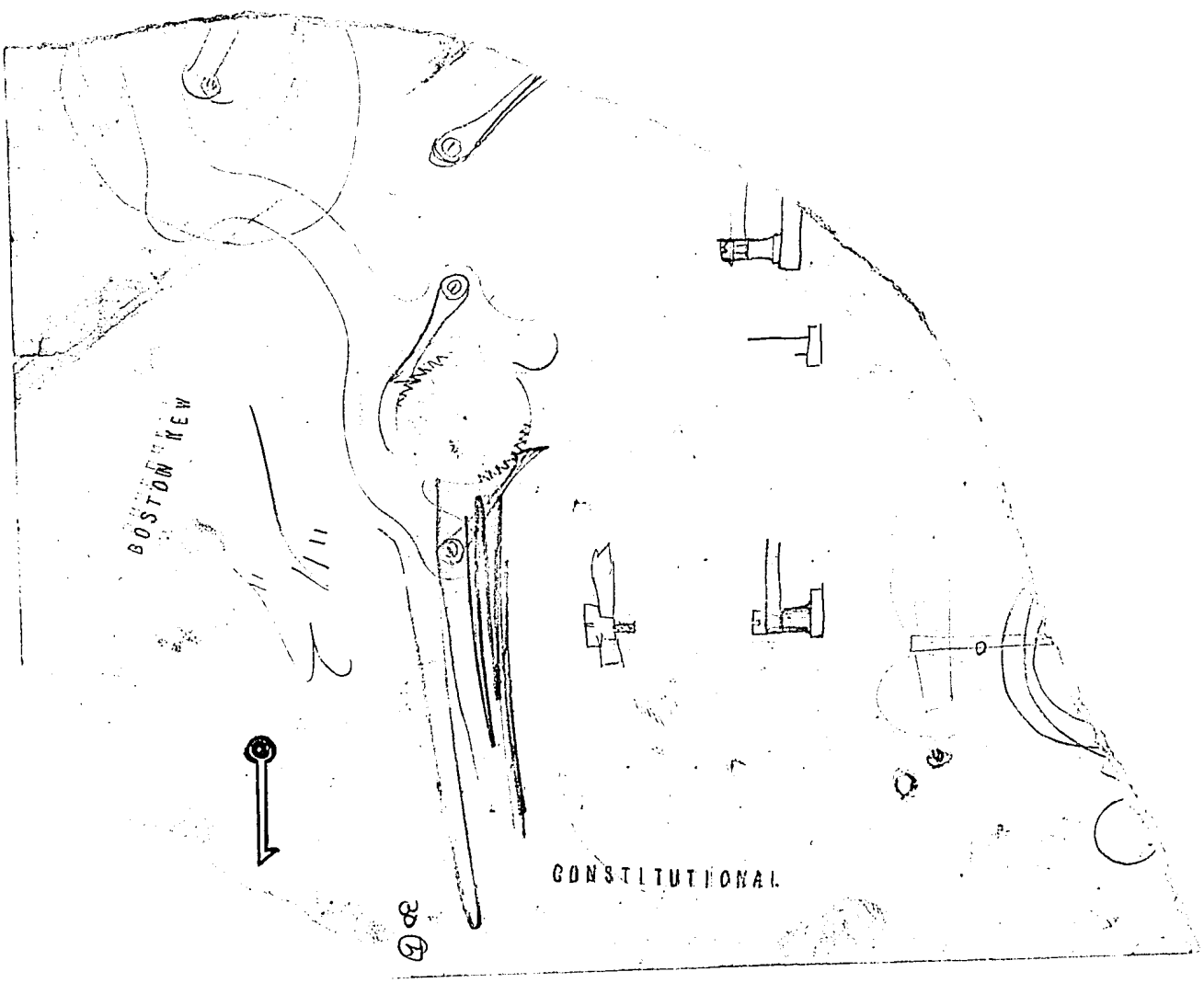

BOSTON

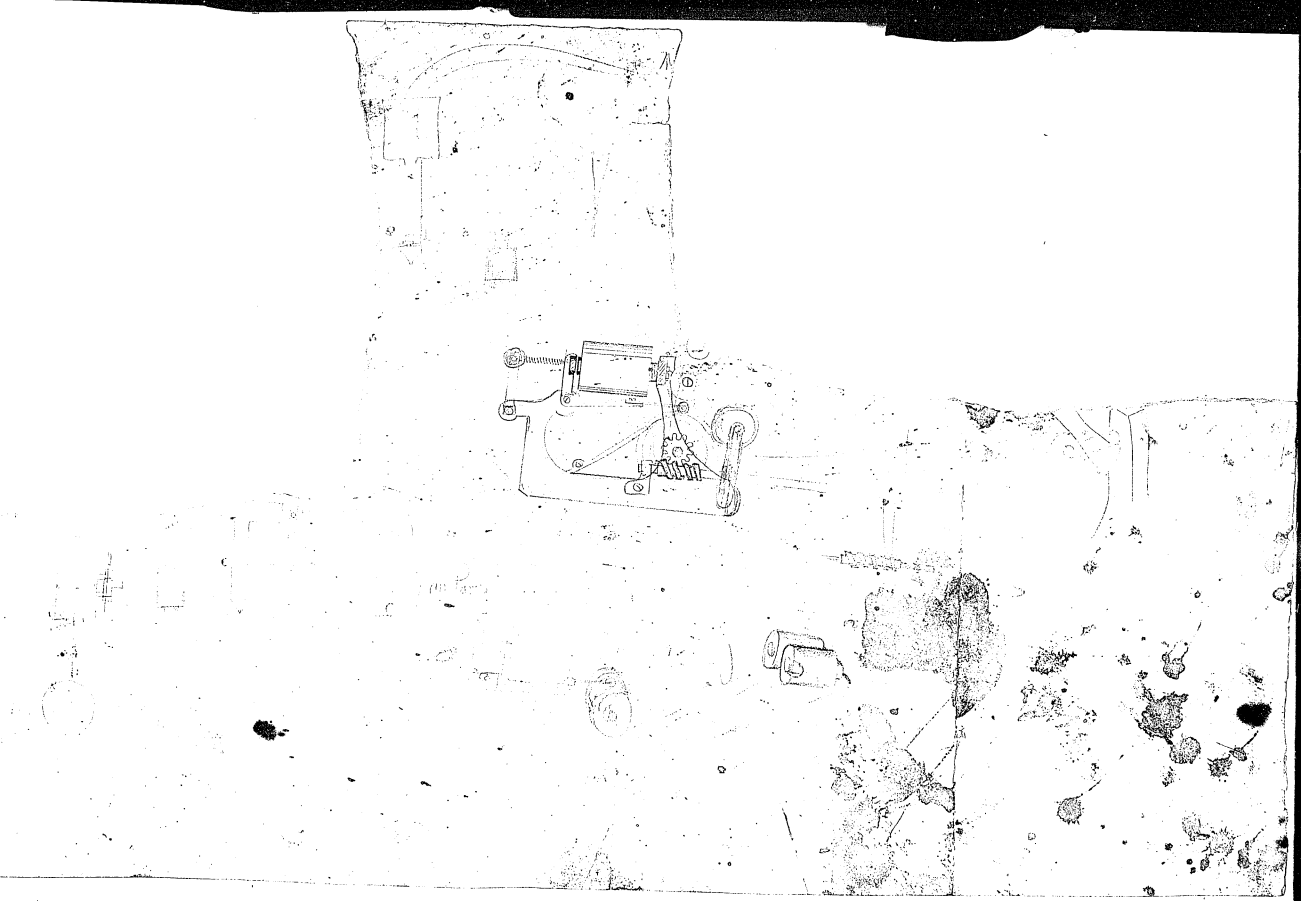

1/4
5/16


shaft 3/16
wheel thru size
15/32 diameter
21

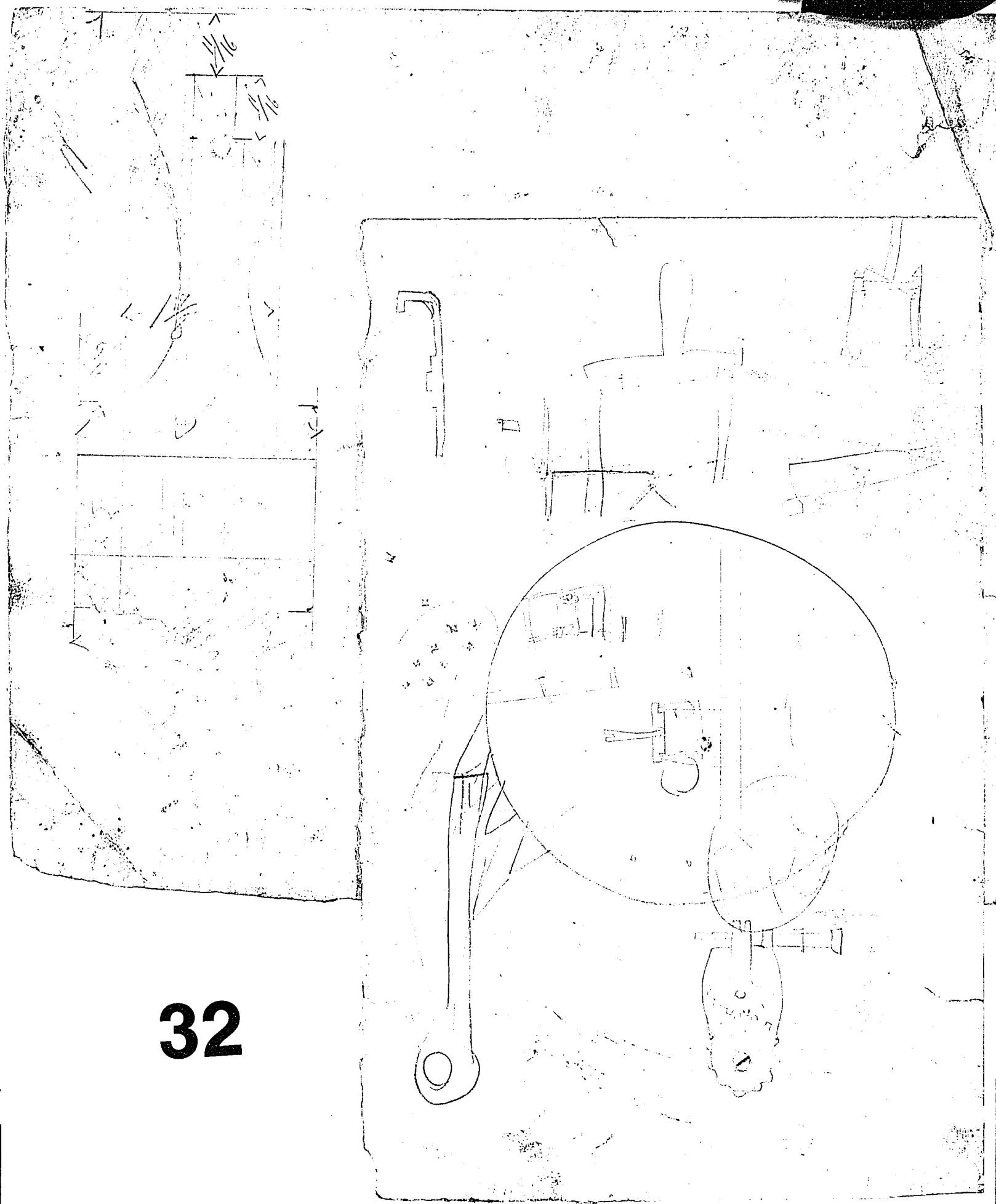




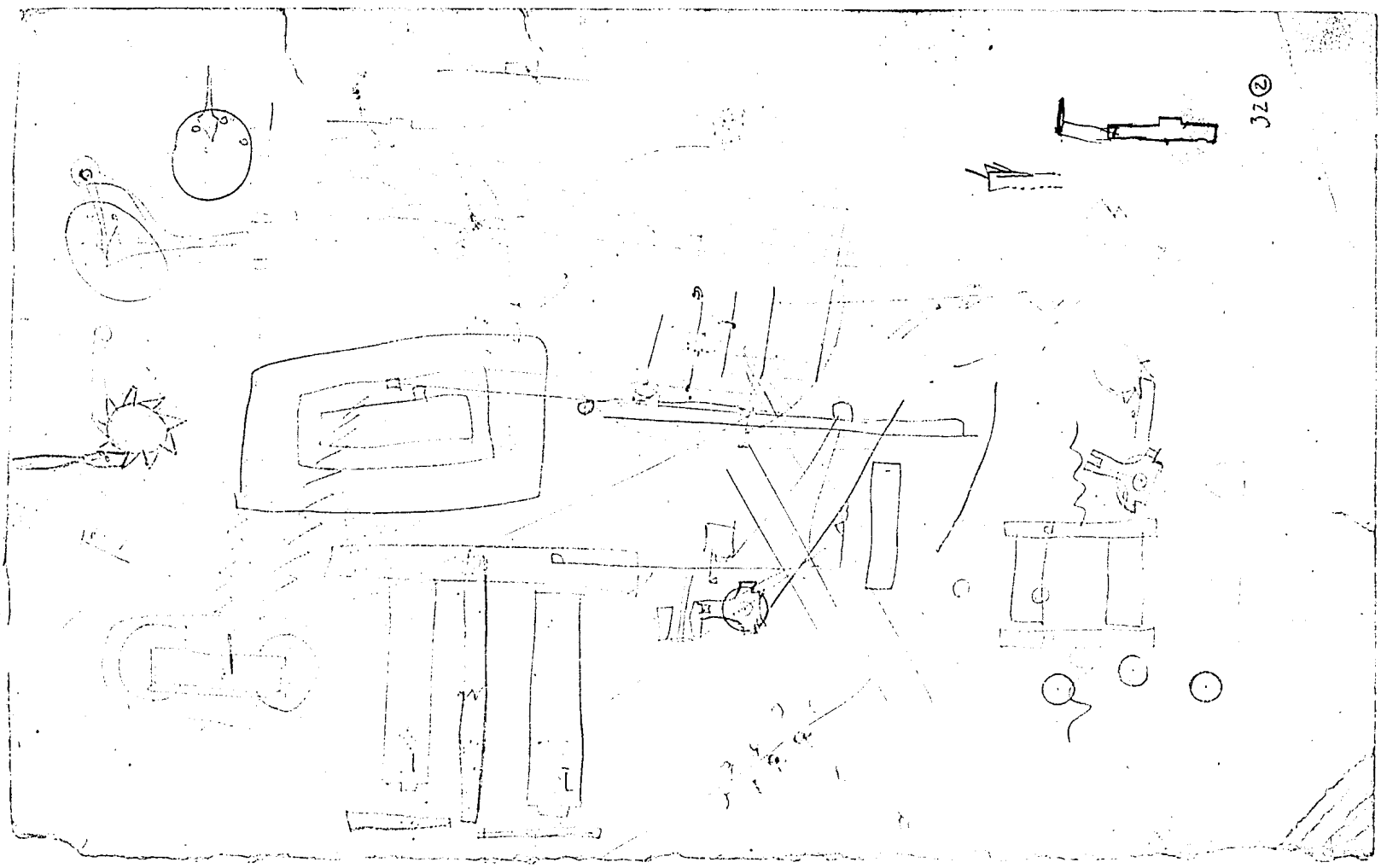

BOSTON NEW
CONSTITUTIONAL



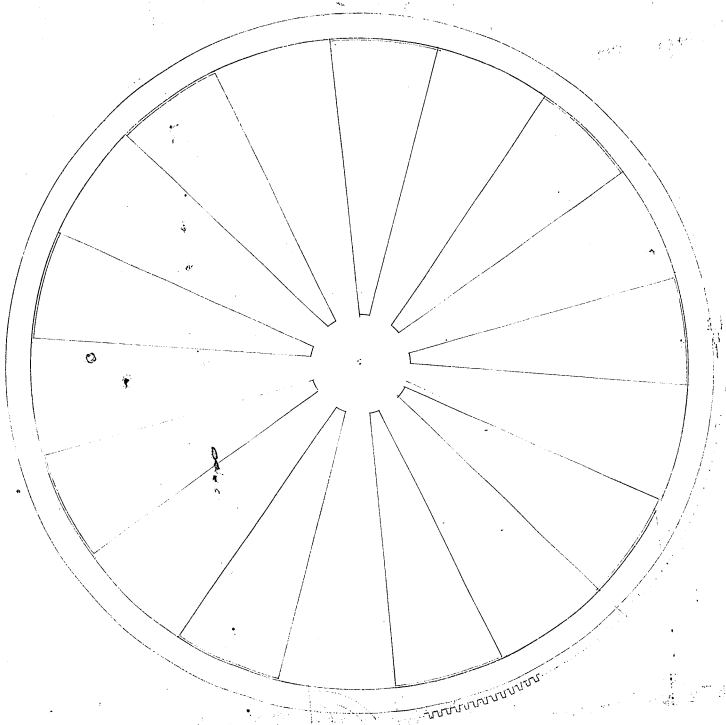
Presto



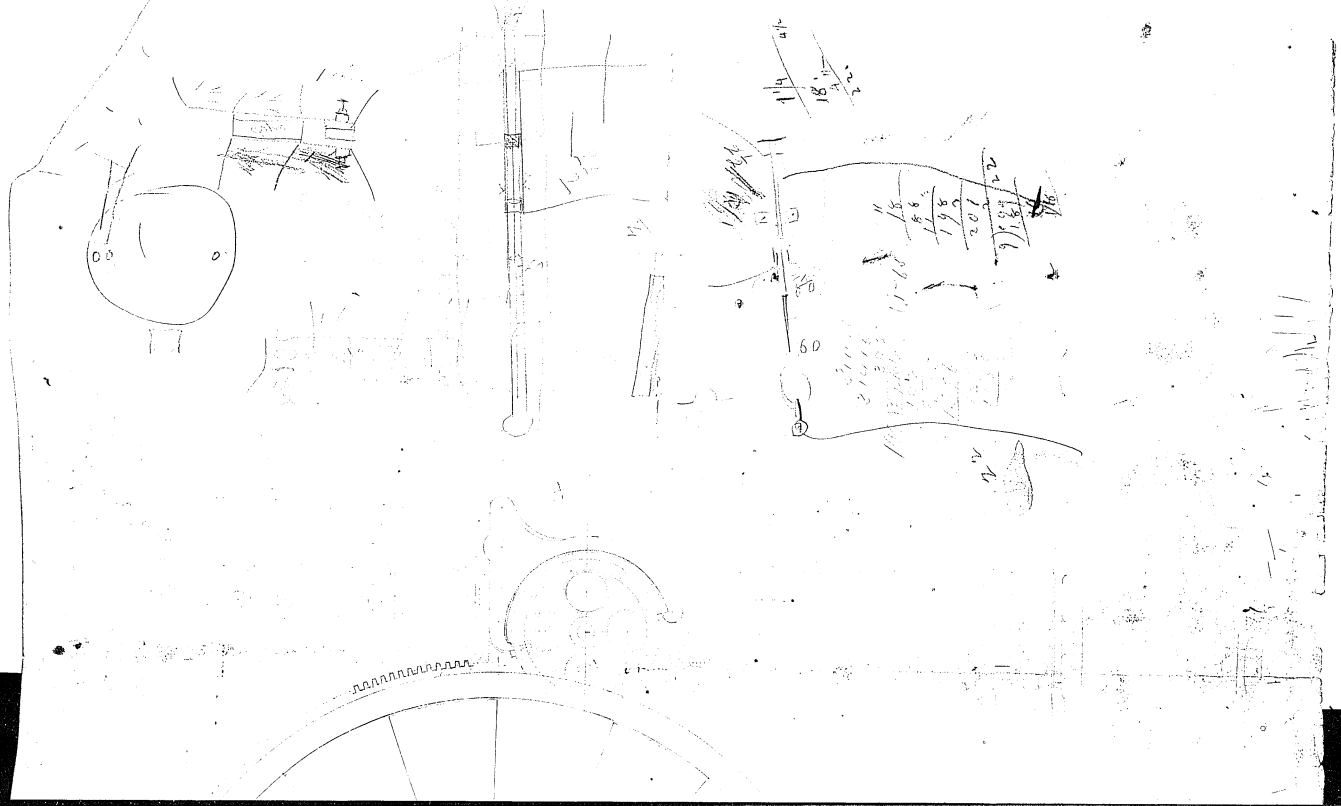
32

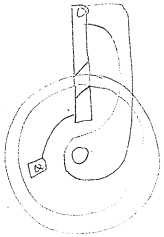

32

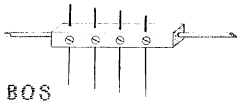
[CONTINUED ON THE NEXT FRAME]

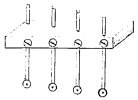


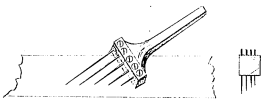
[CONTINUED FROM THE PRECEDING FRAME]

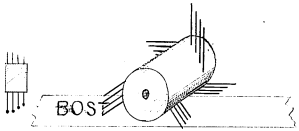


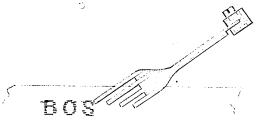


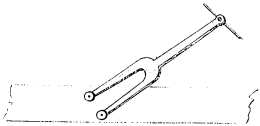


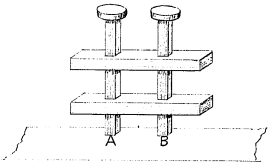










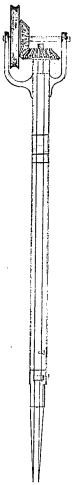


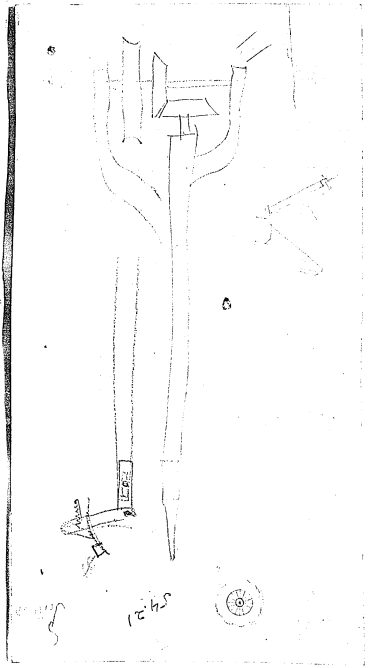
BOSTON

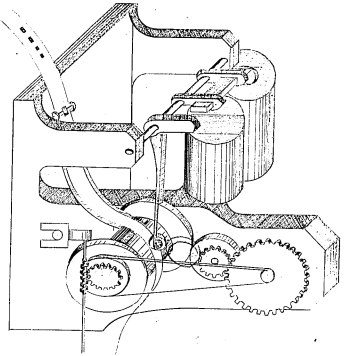
BOSTON

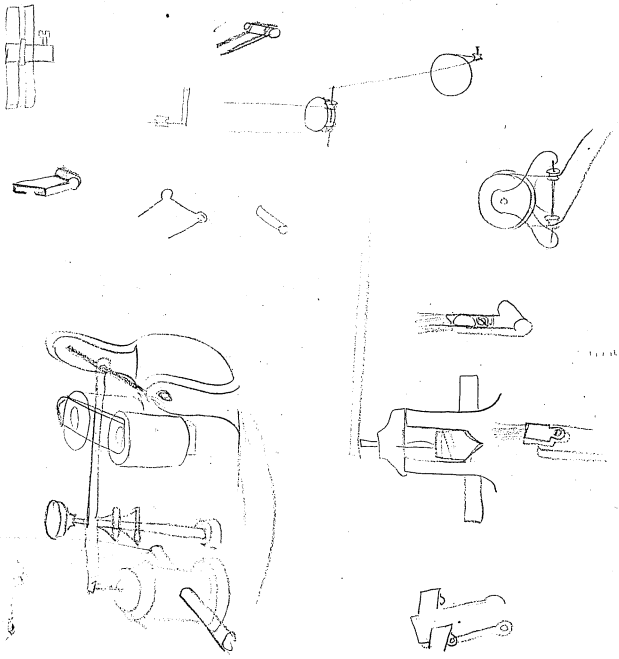
BOSTON

PATENT MILLING MACHINE FOR HASH-GRINDERS.

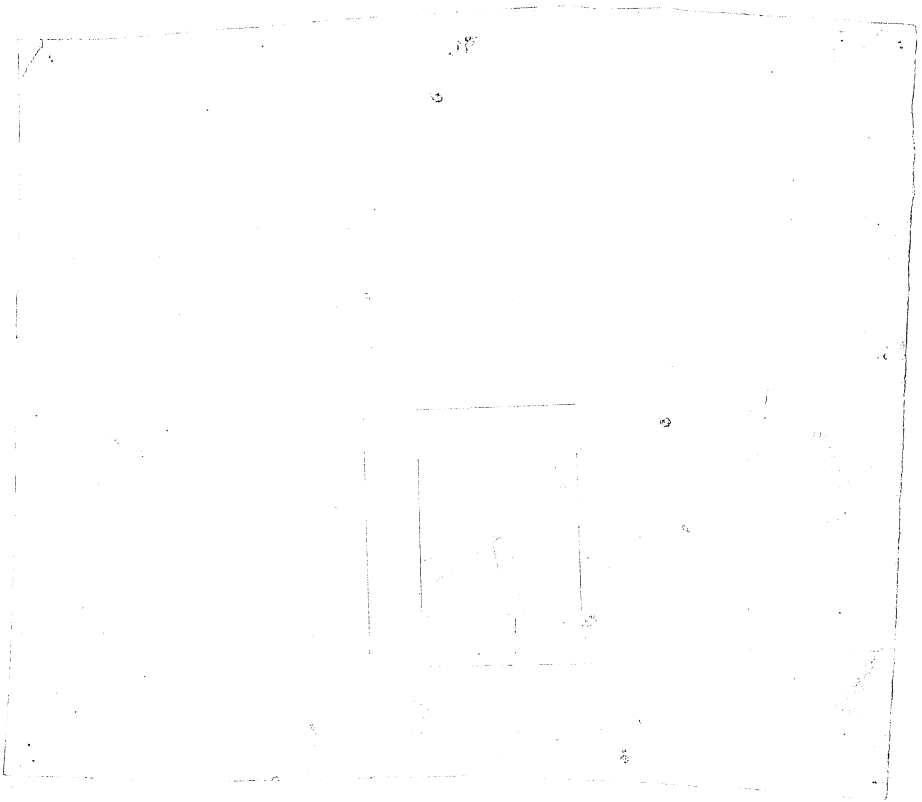


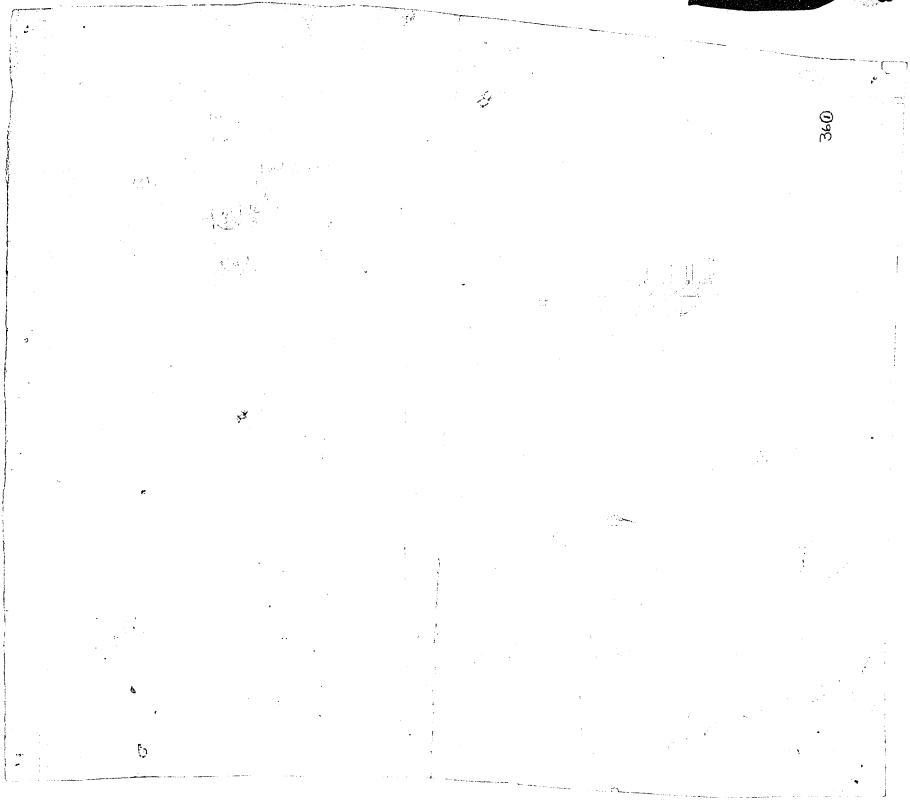




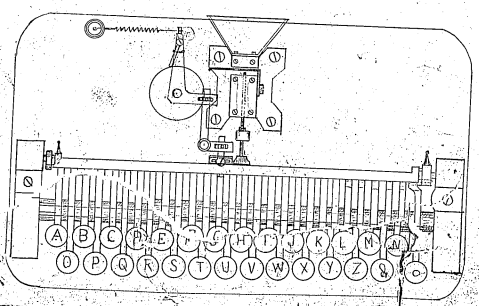


35

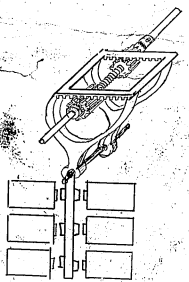


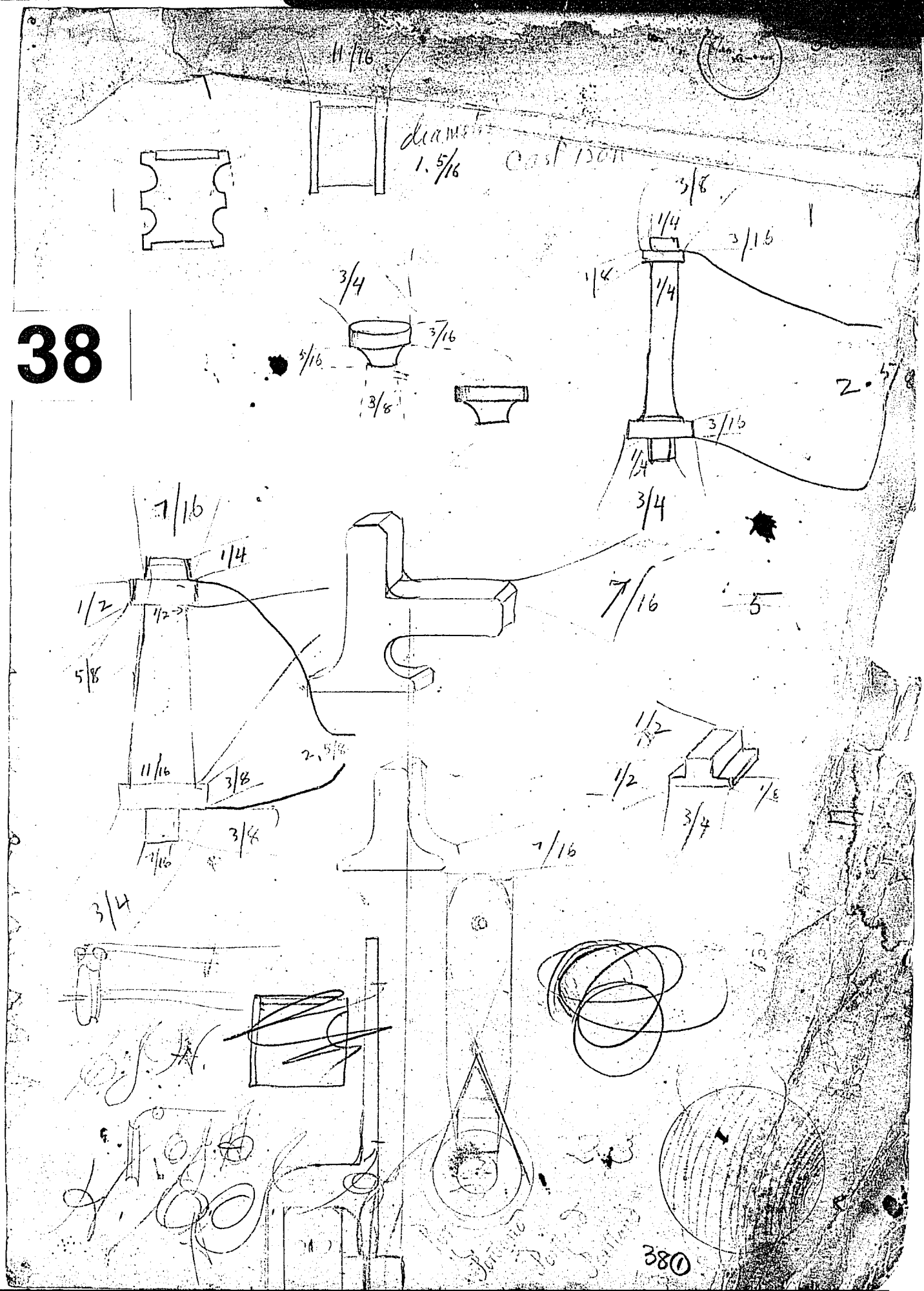

360

37

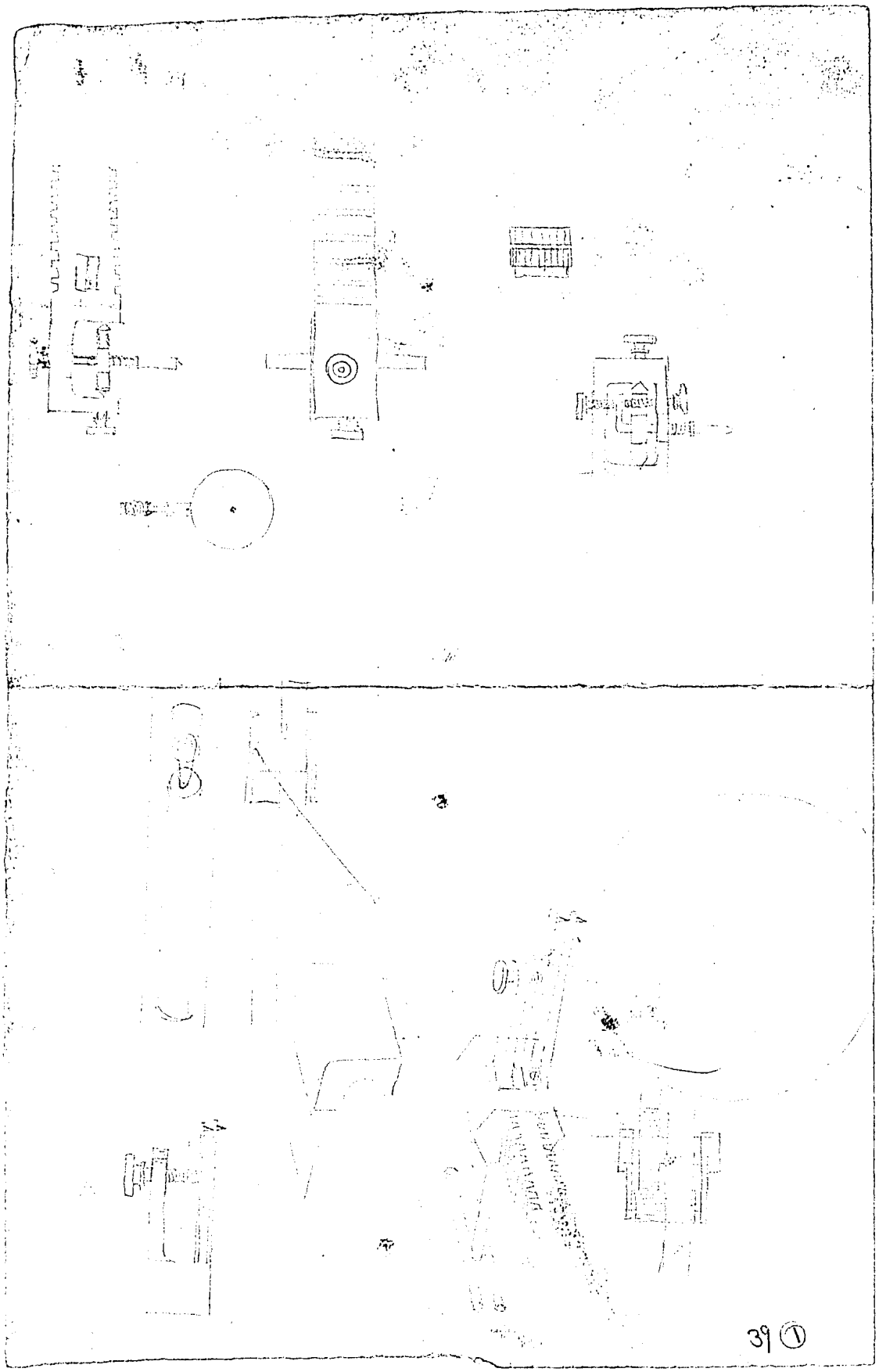


37

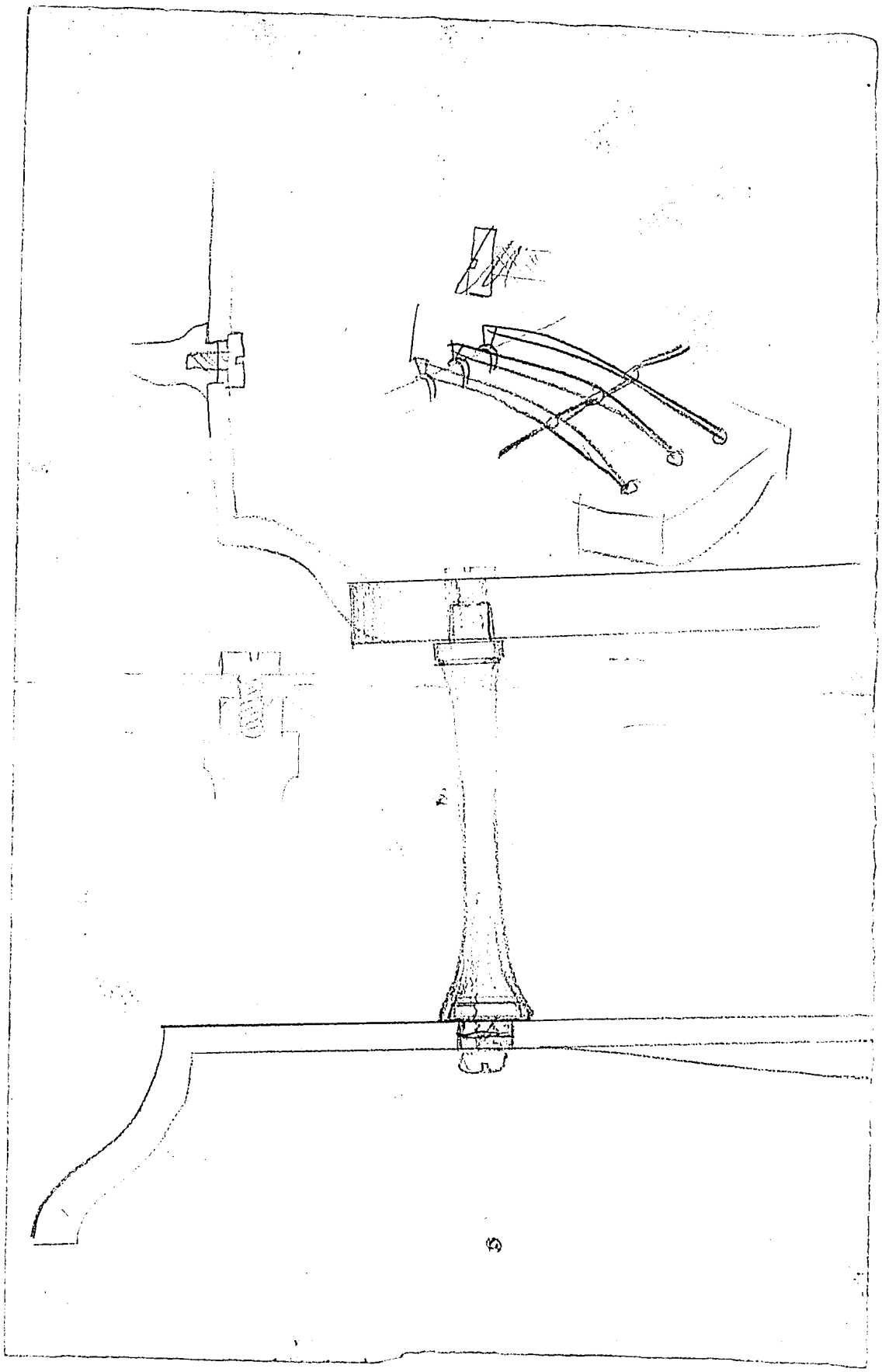



38
11/16
diameter
1.5/16
cast iron
3/8
1/4
3/16
1/4
1/4
3/4
3/16
5/16
3/8
3/16
2.5/8
3/4
7/16
1/4
1/2
1/2
5/8
7/16
5
2.5/8
11/16
3/8
3/4
7/16
1/2
1/2
1/8
3/4
7/16
3/4
380

38

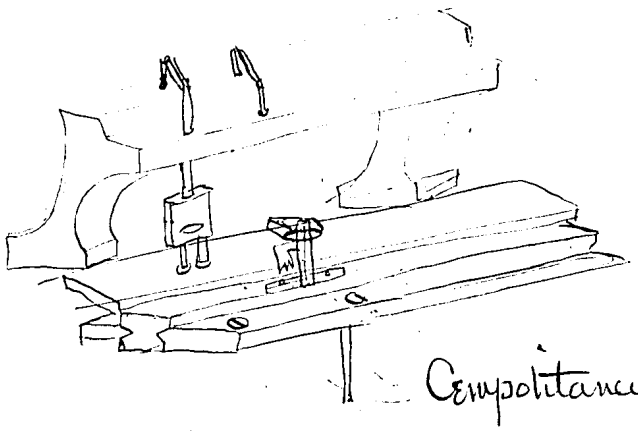


39 ①



OFFICE OF THE
AMERICAN TELEGRAPH WORKS.
No. 103 NEW JERSEY RAILROAD AVE.,
NEWARK, N. J.

Newark, N. J., 187

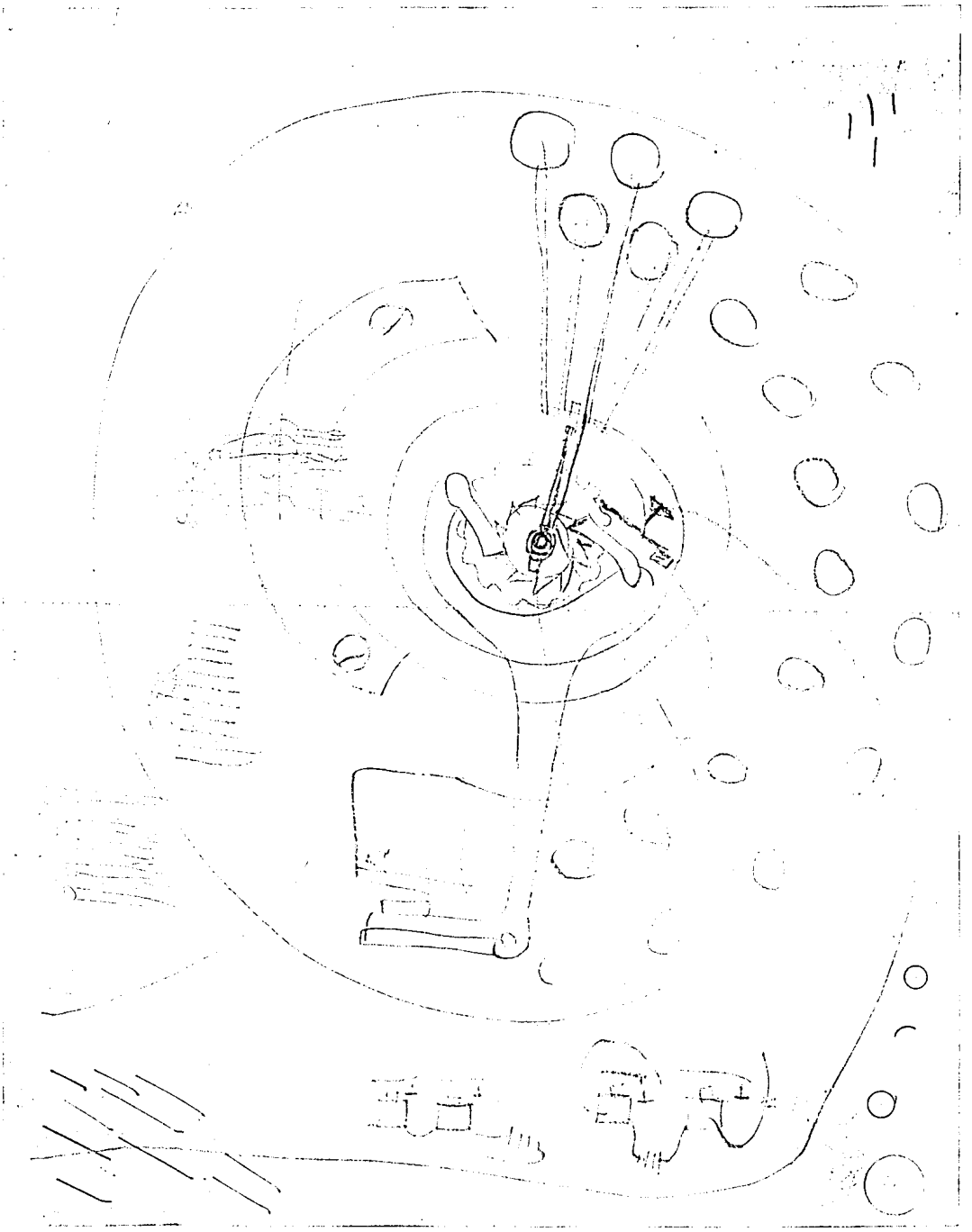


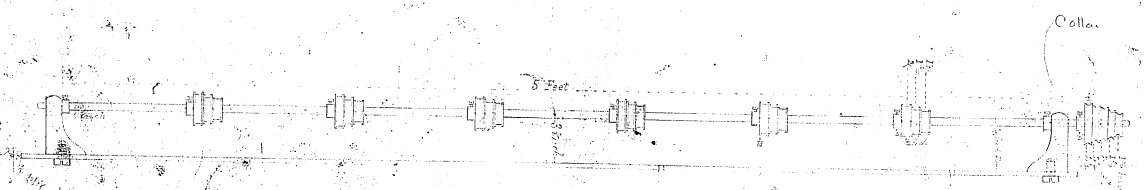
Cenapholean!

Adonni Voluptuous Cuss!
Cupidum Cerum Voluminus
Chase armorous angels
With thy ponderous
progenitive Apparatus

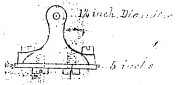
39 (1)

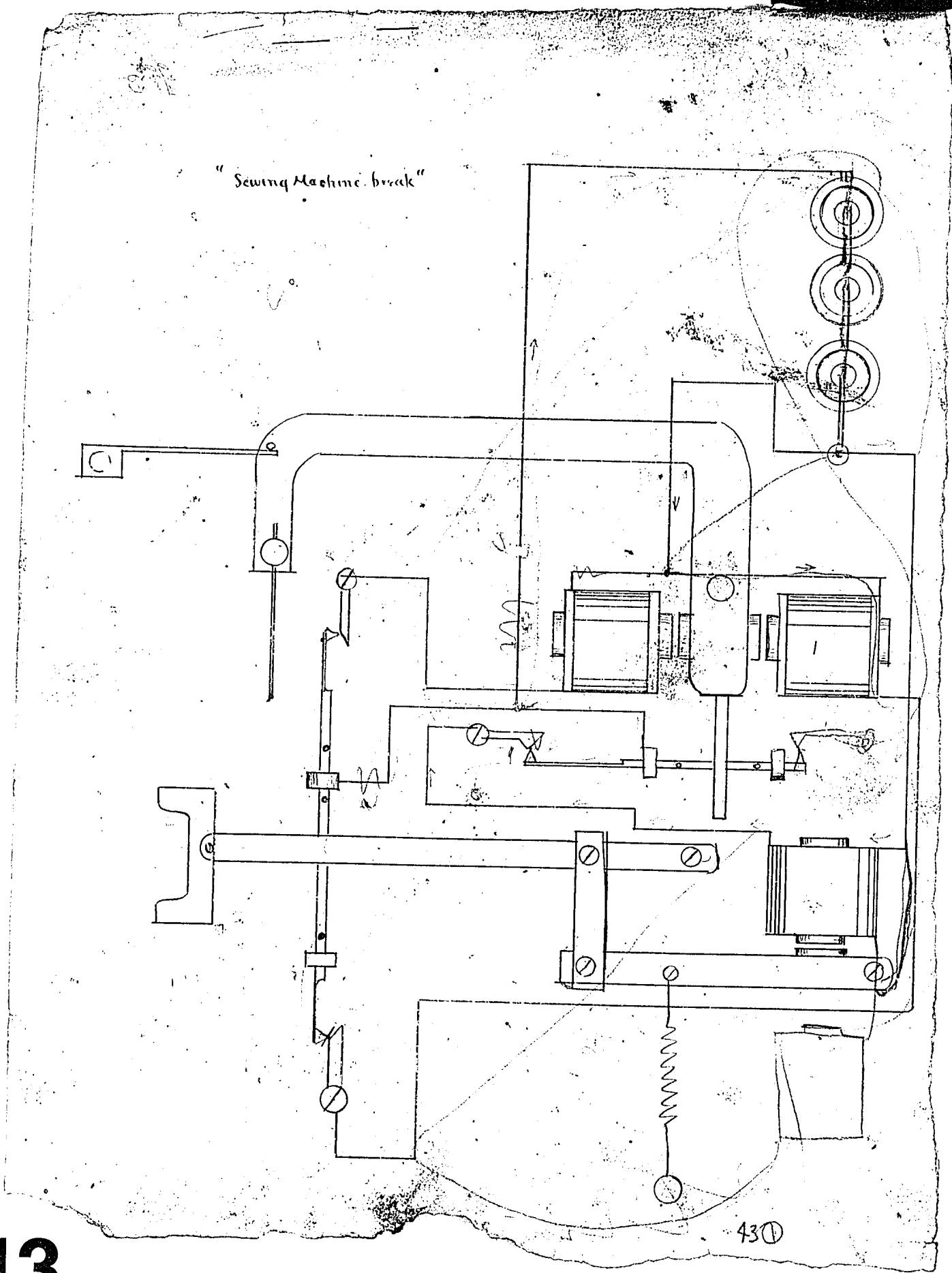
39

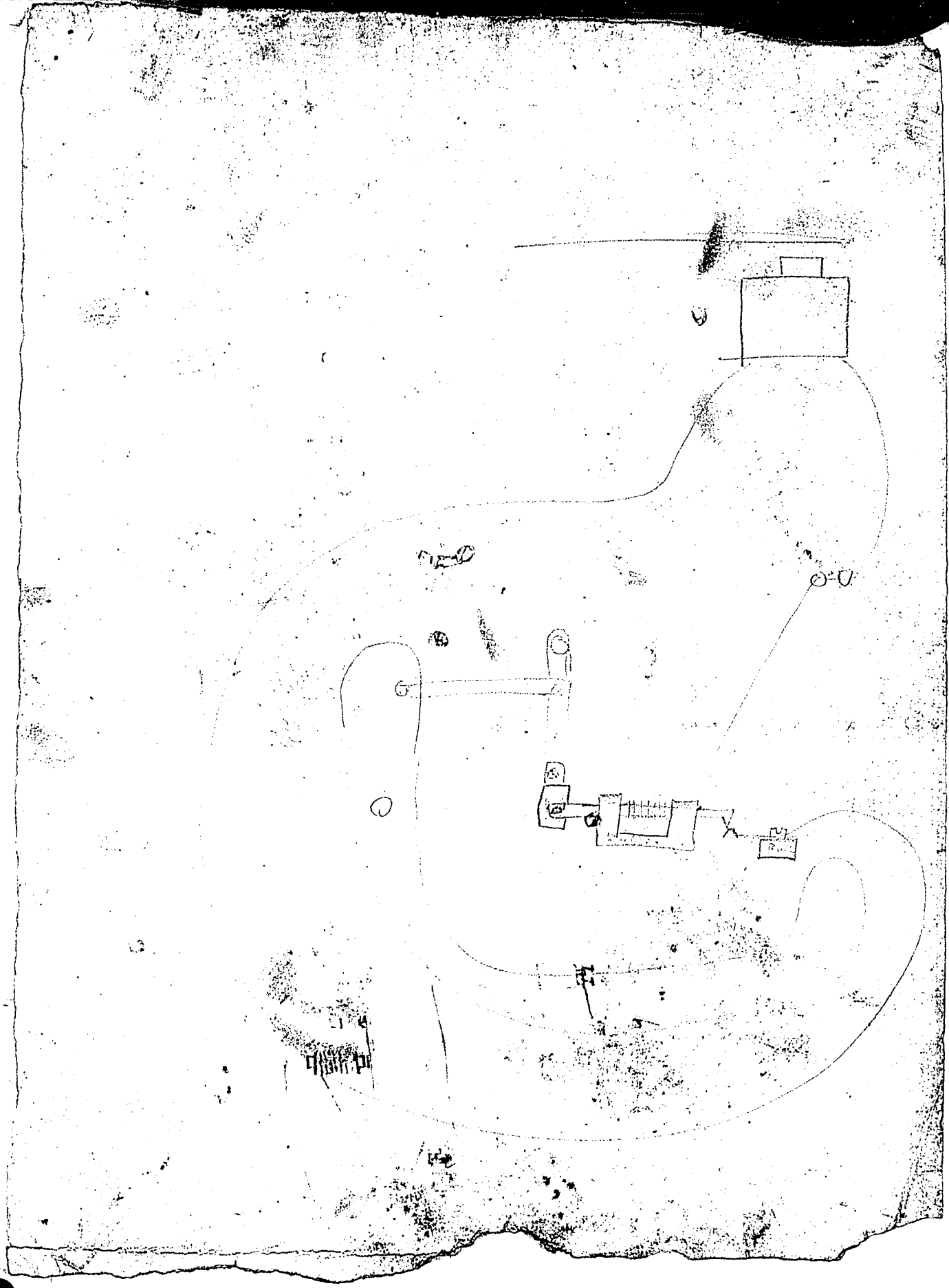



5 Feet

1 Inch to 1 Foot



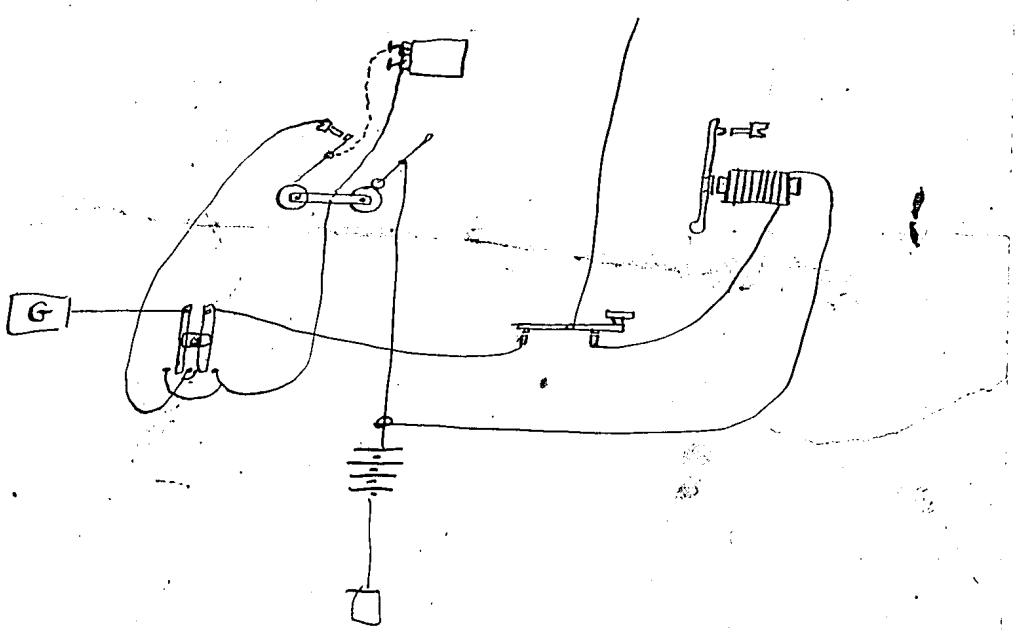

" Sewing Machine break"
43①



Automatic Telegraph Company,

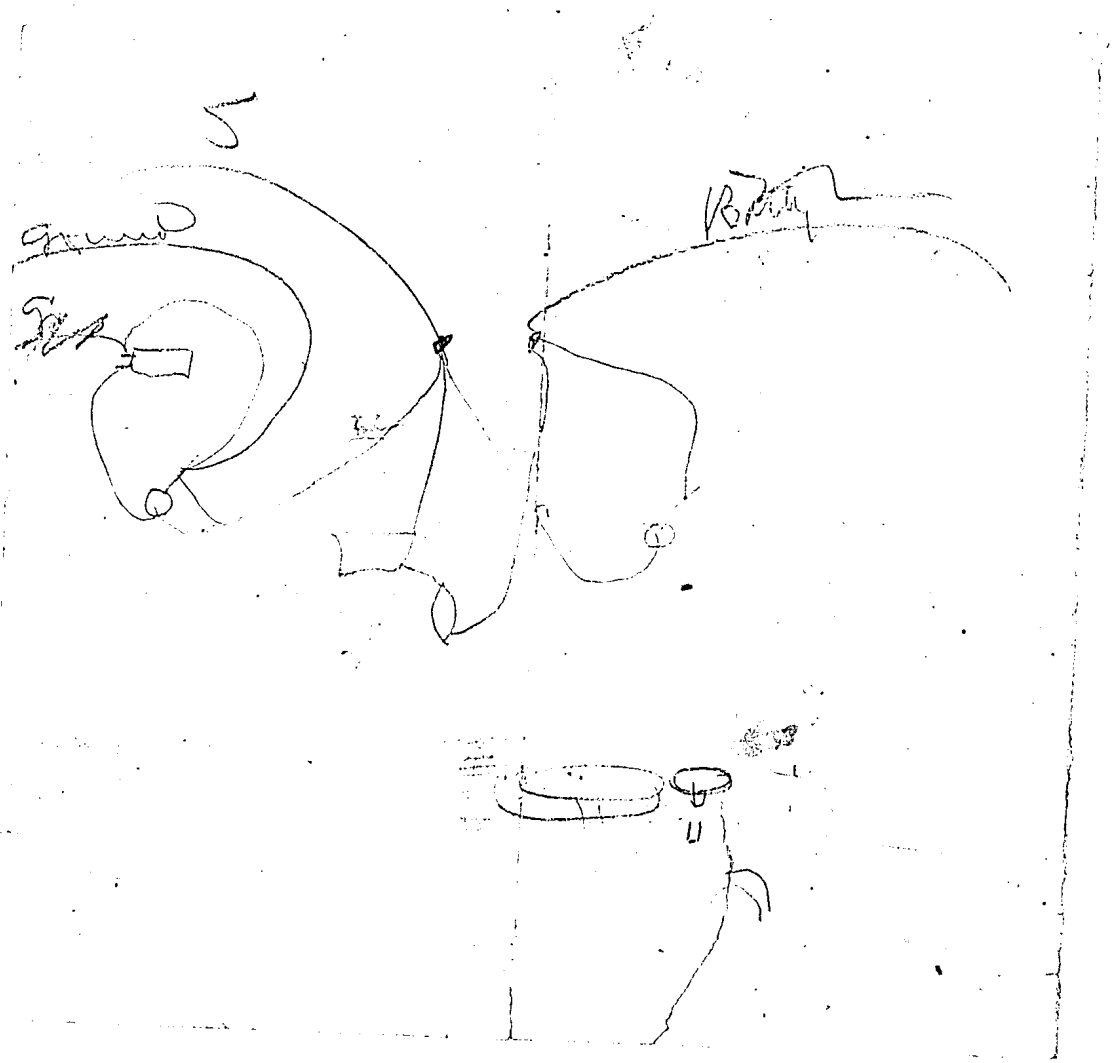
80 BROADWAY, ROOM 30.

New York, 187



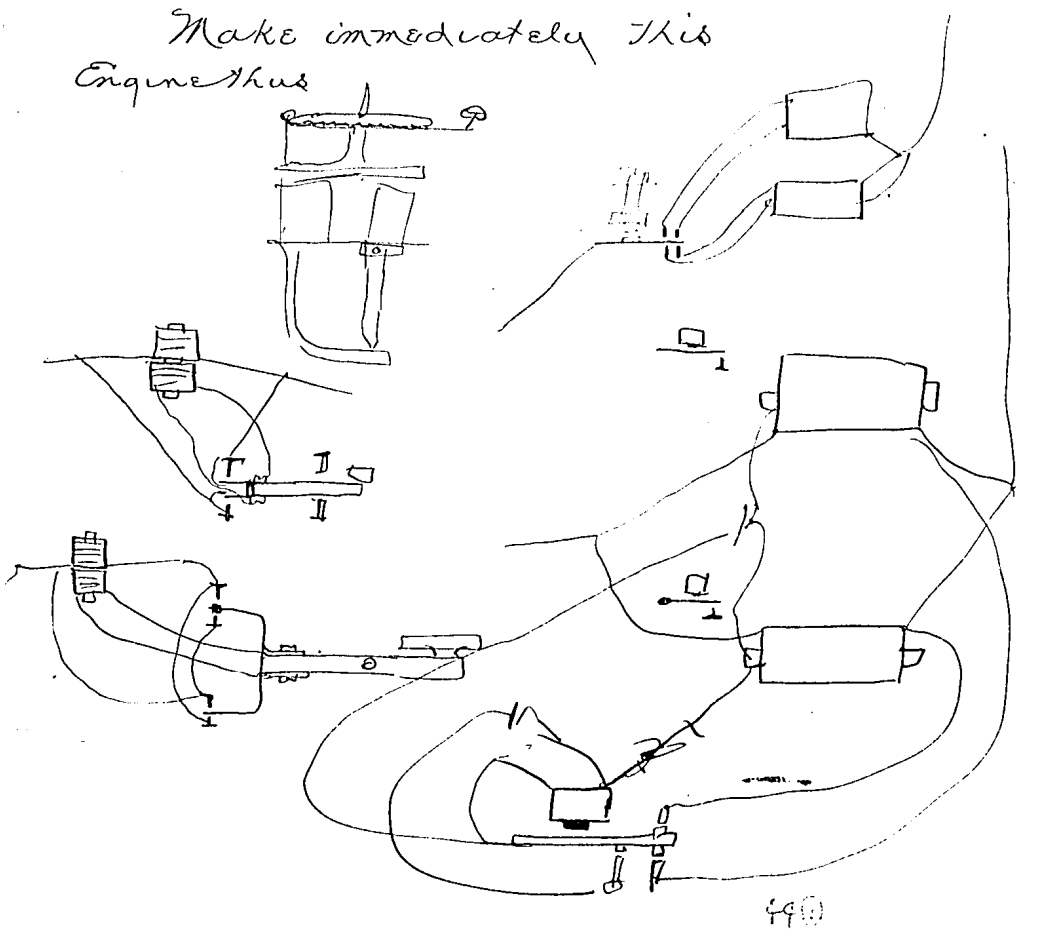
43 (B)

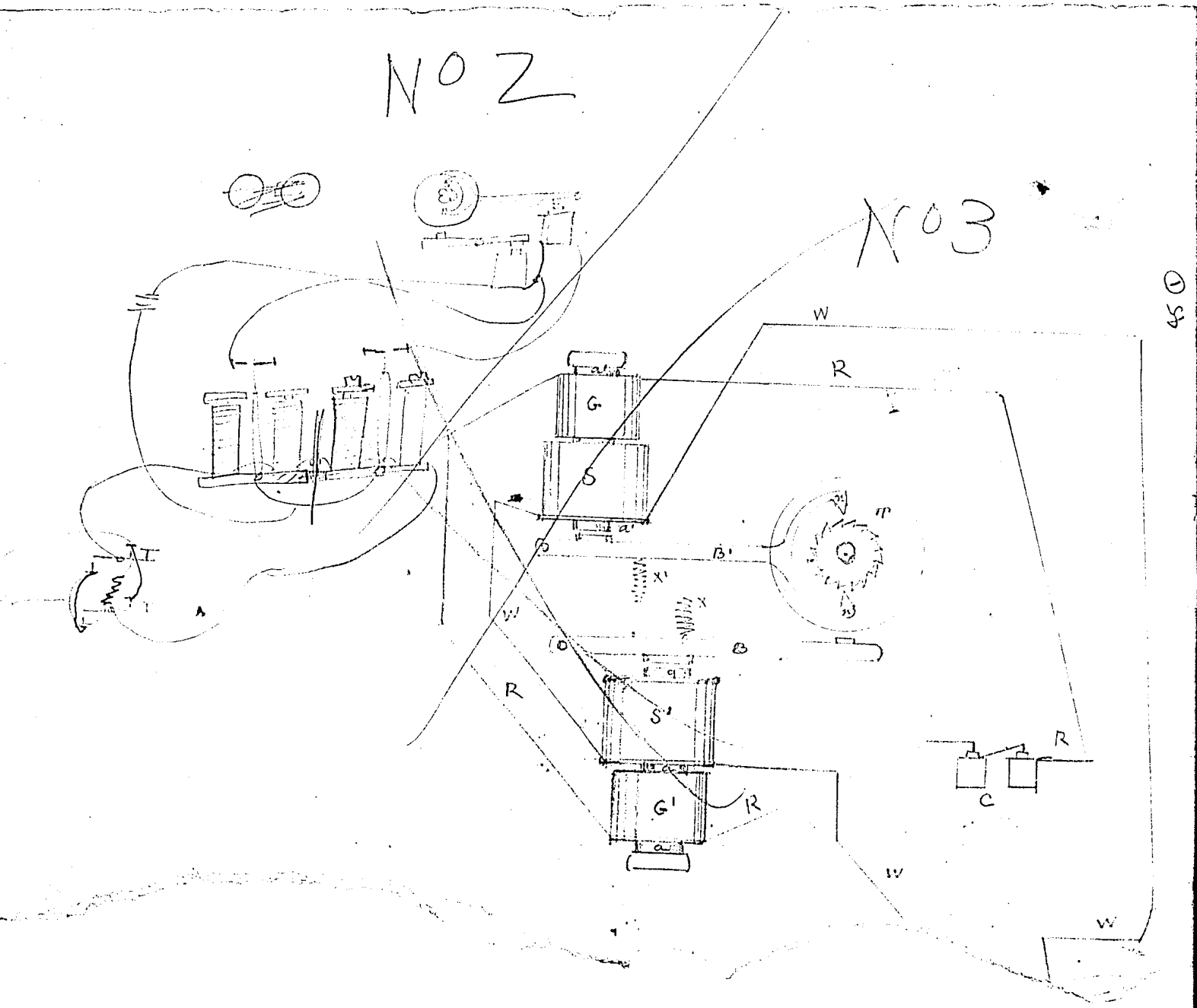
43

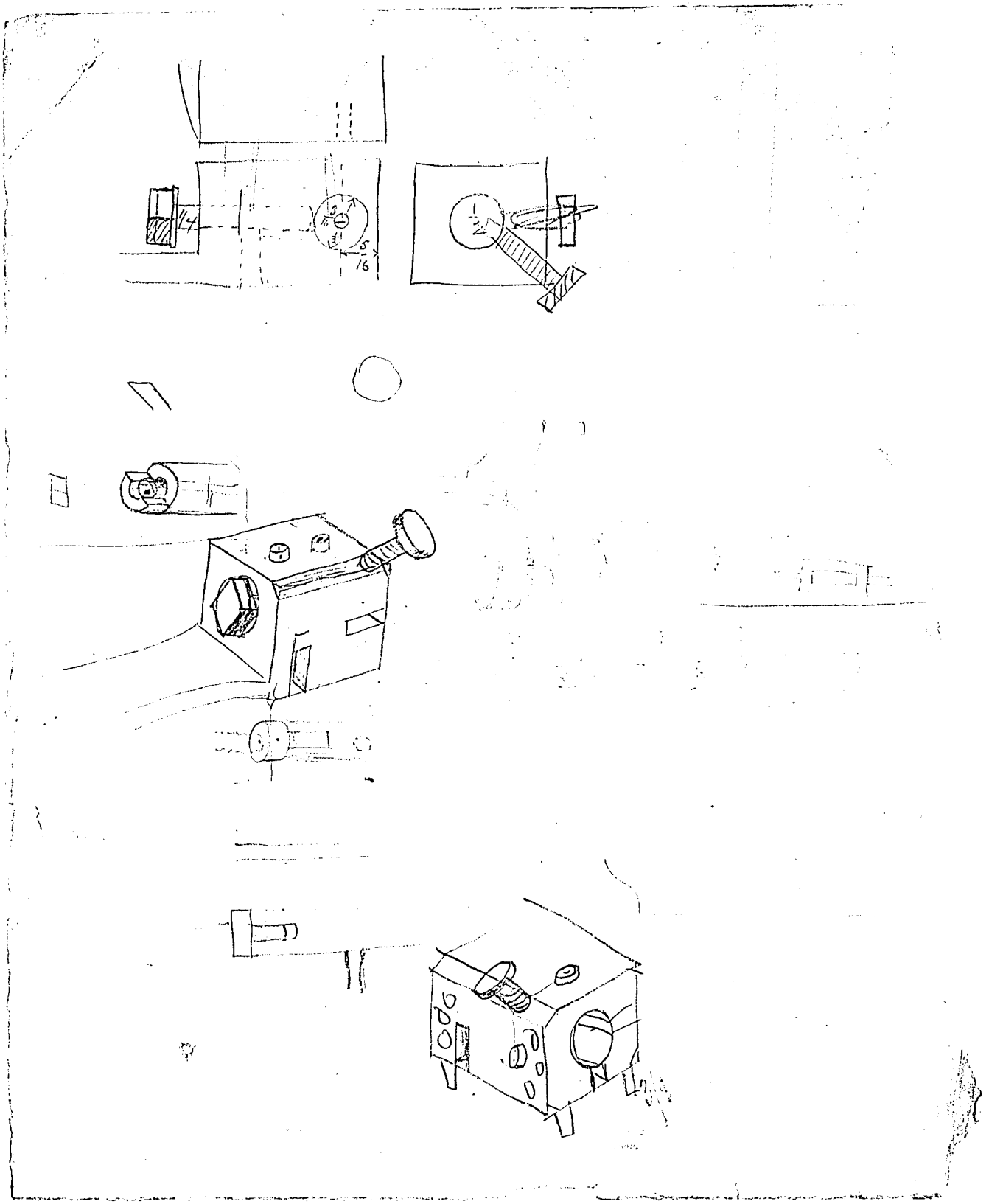


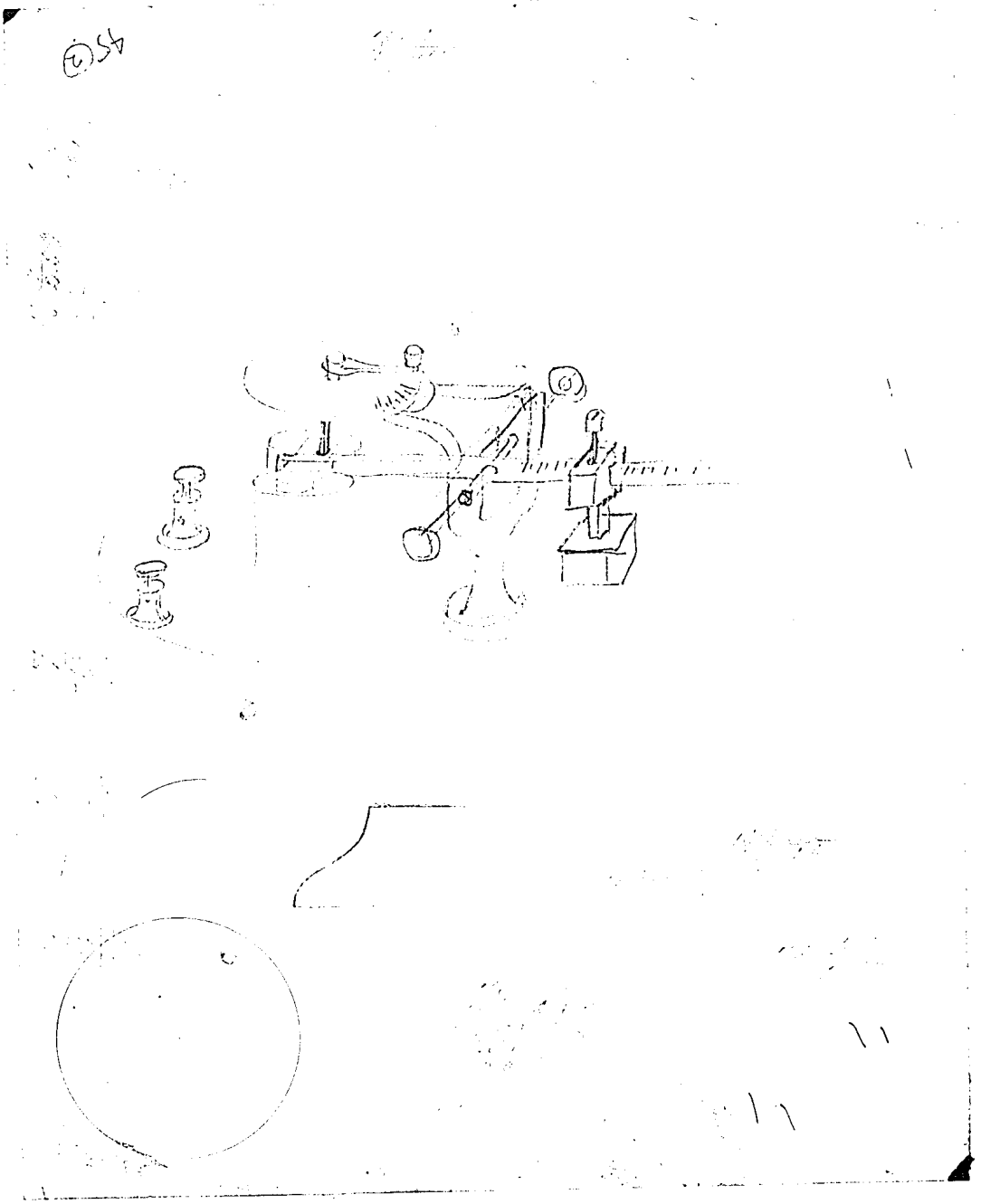
Sean

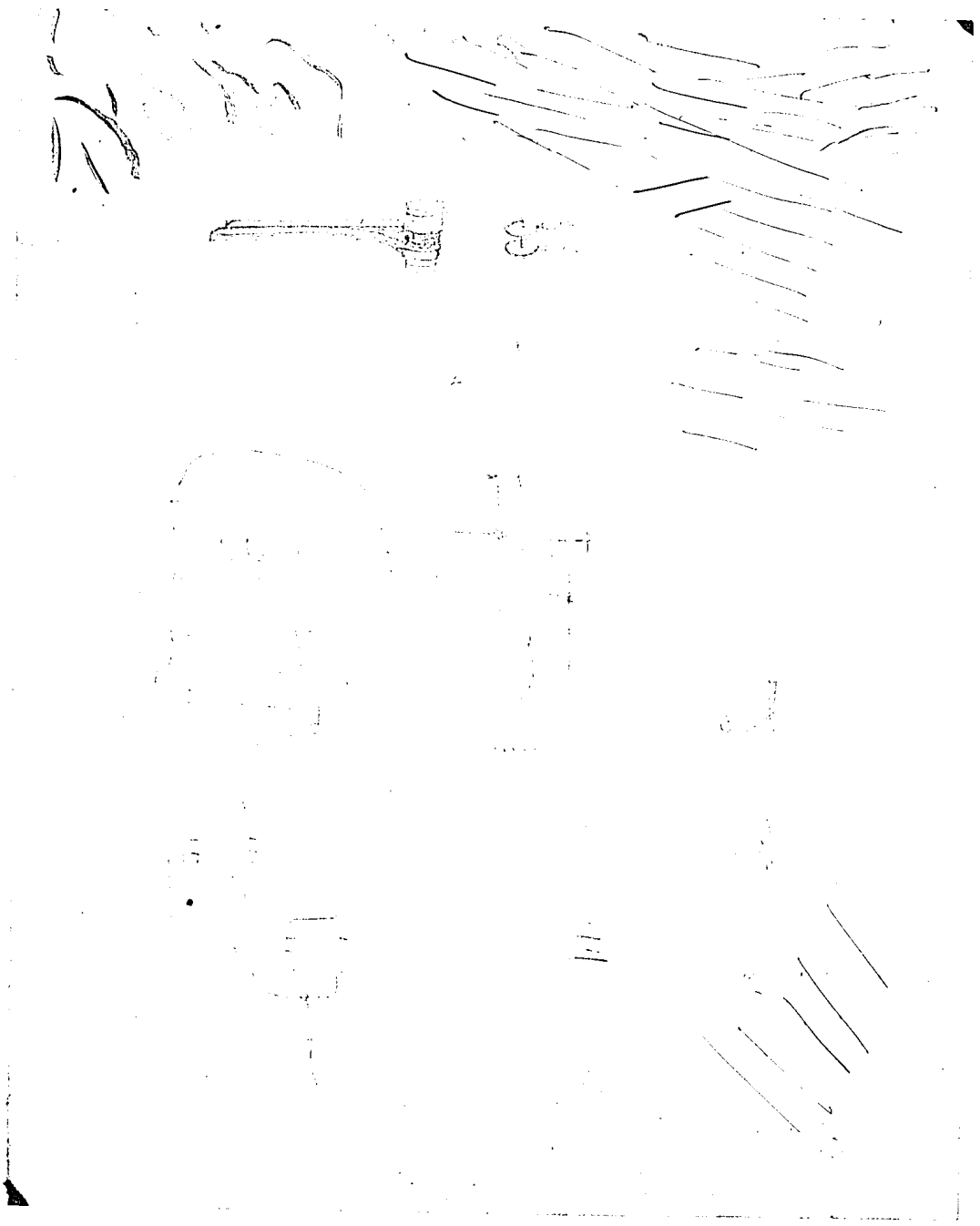
Make immediately This Engine thus

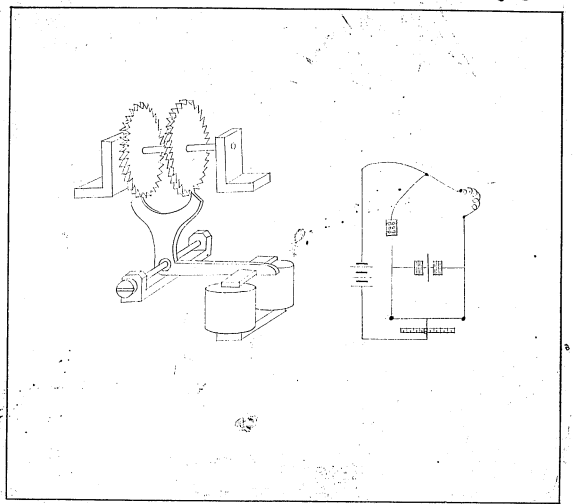


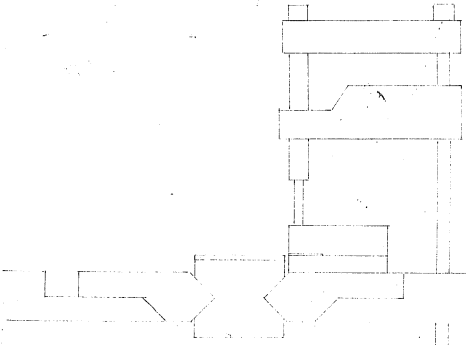

N°2
N°3
W
R
G
S
B'
X'
X
B
S'
G'
R
C
R
W
W

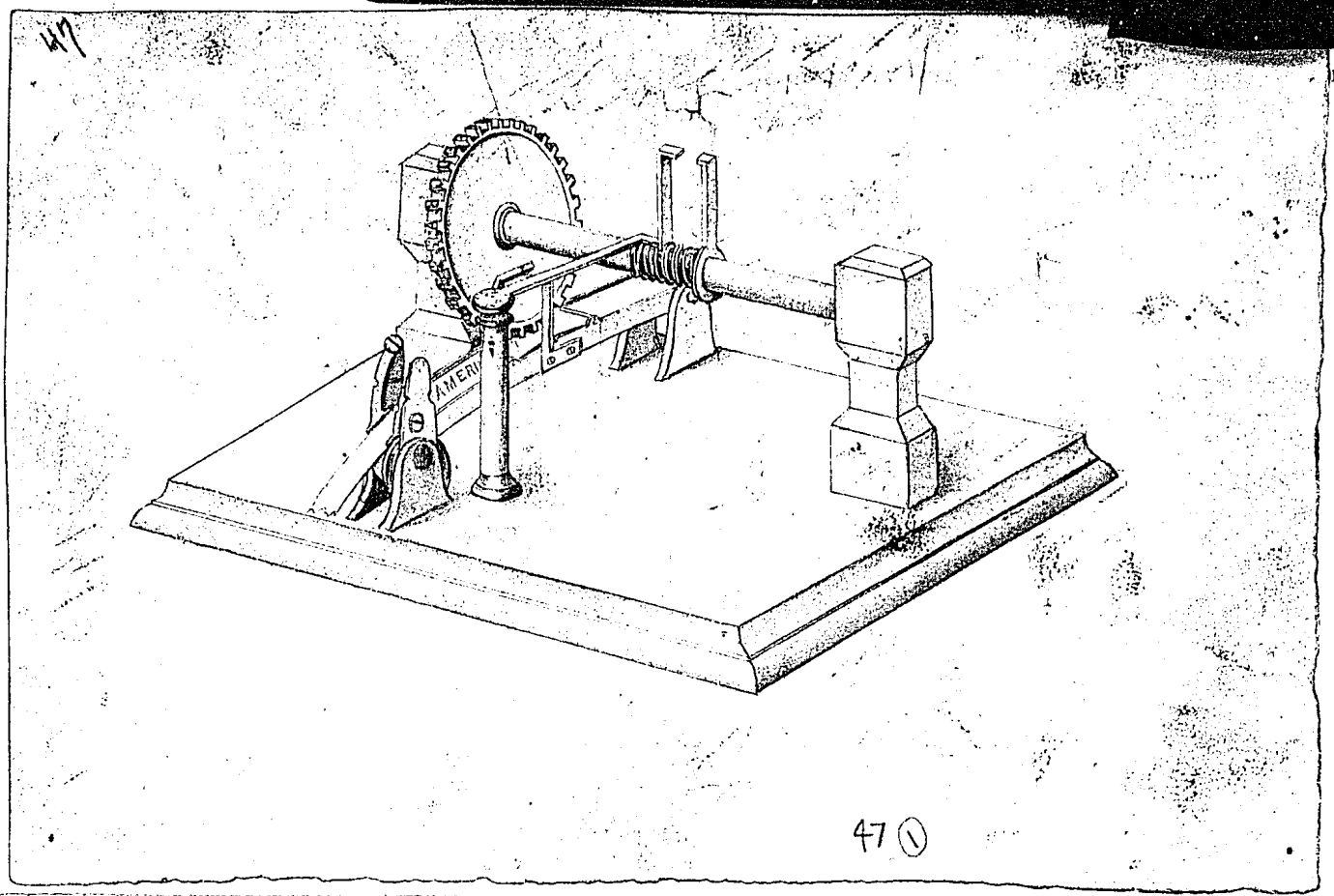






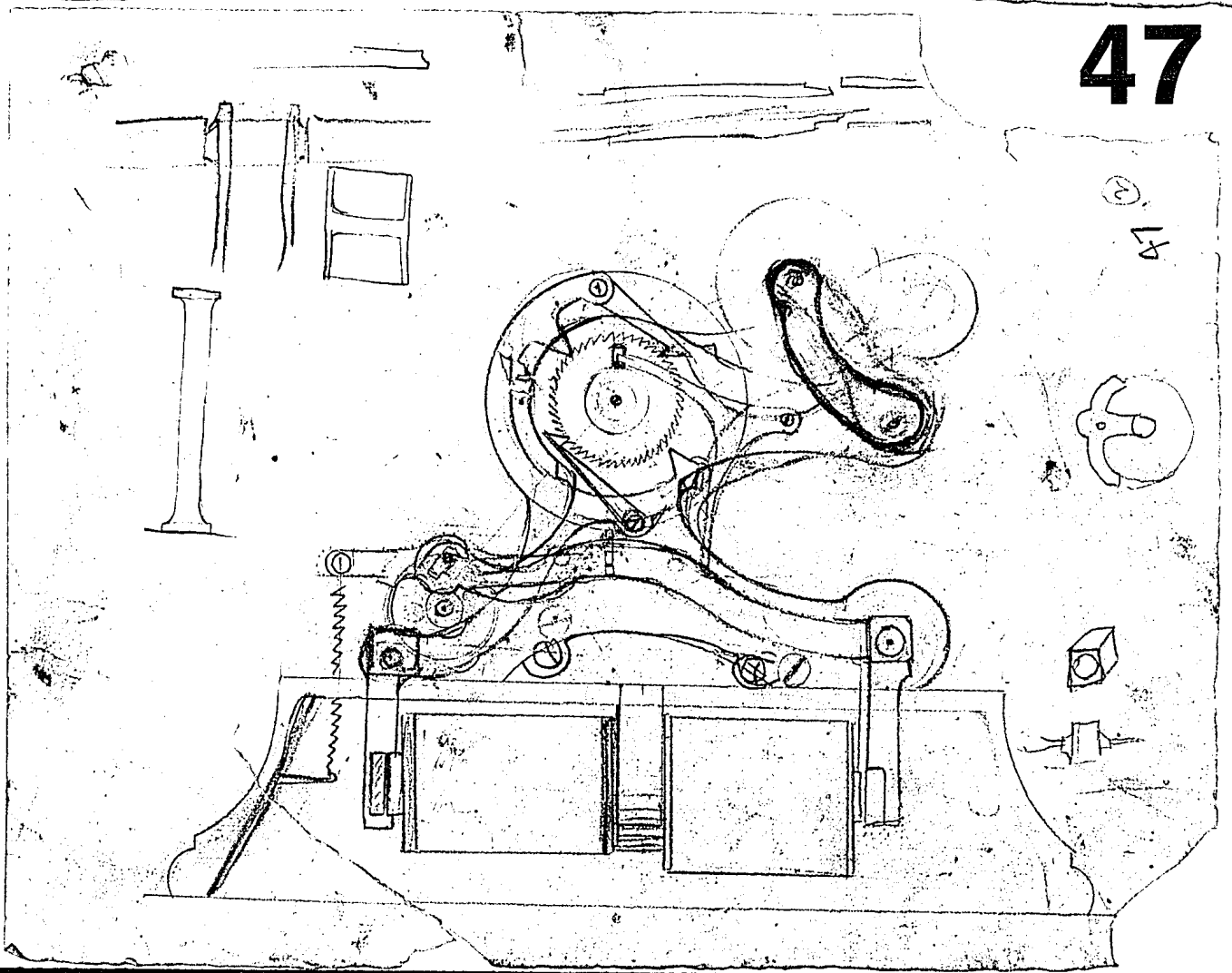




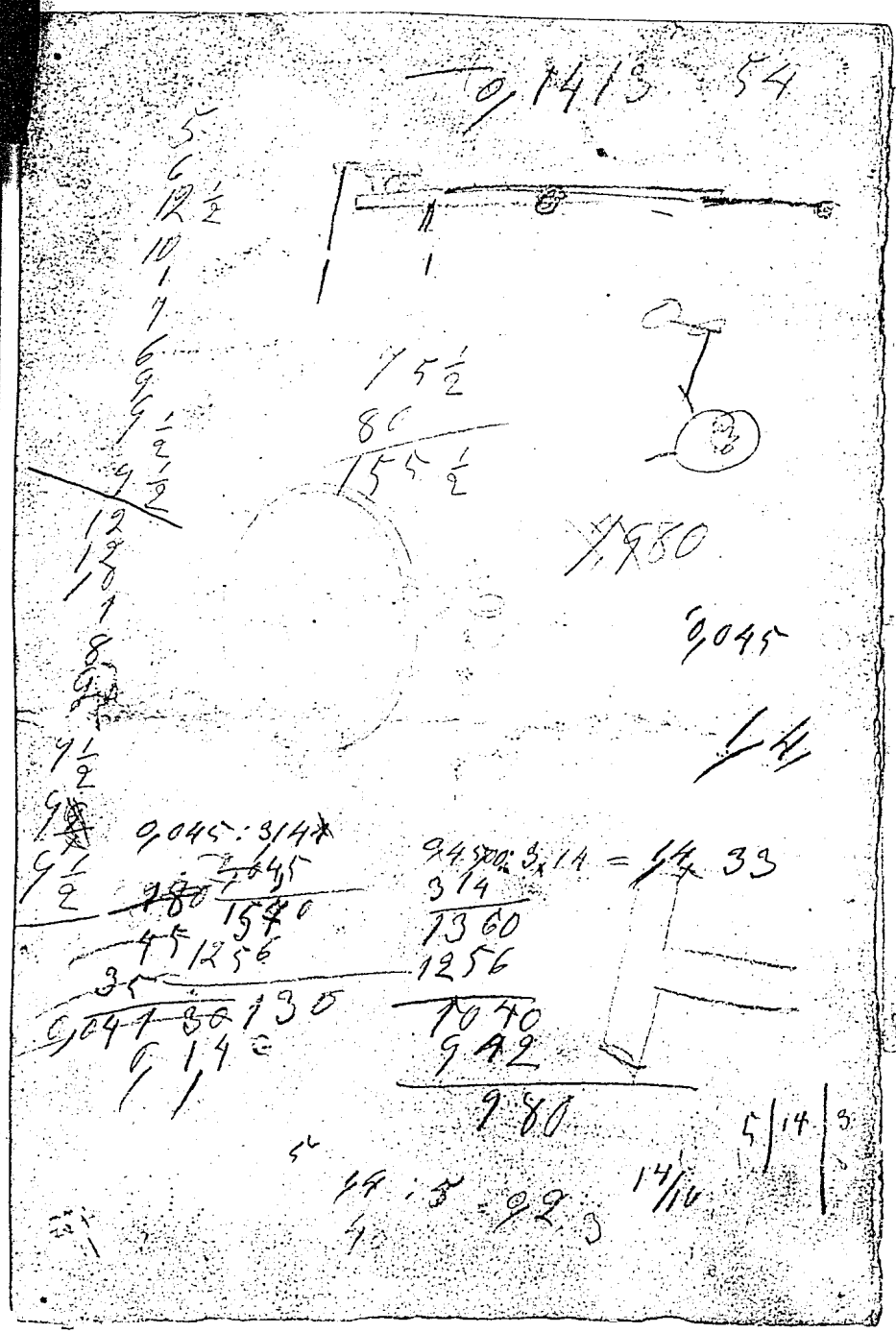


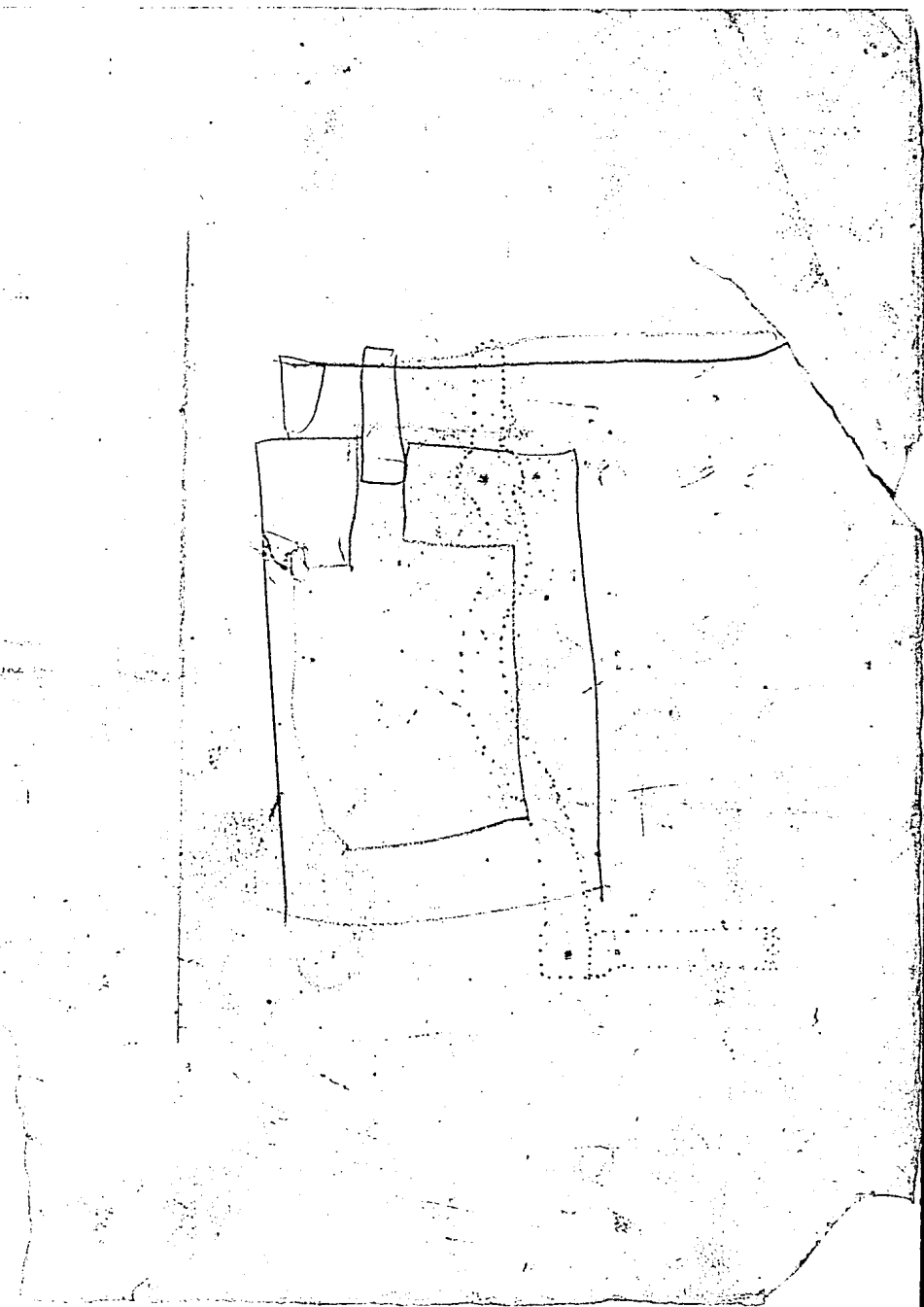
47①

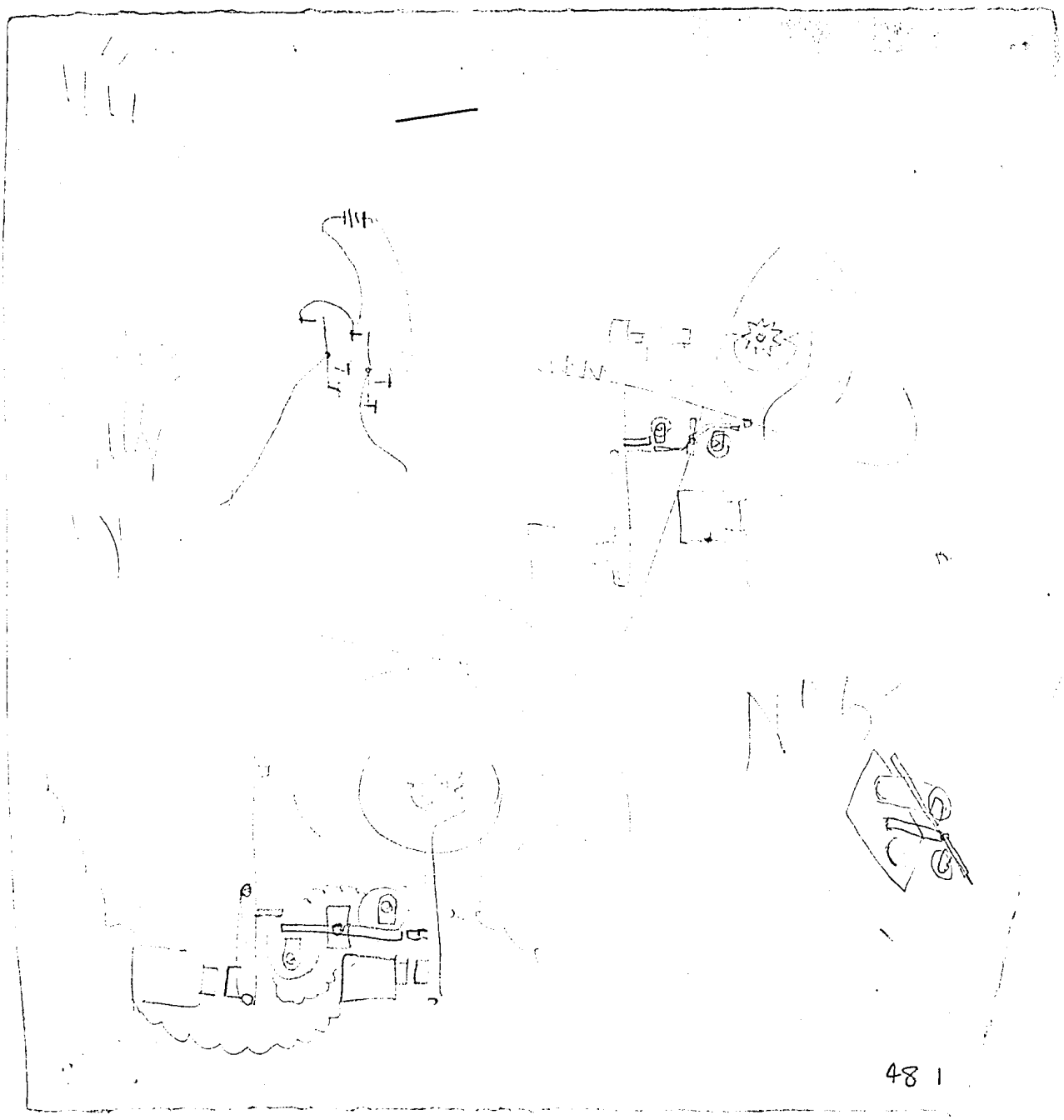
47

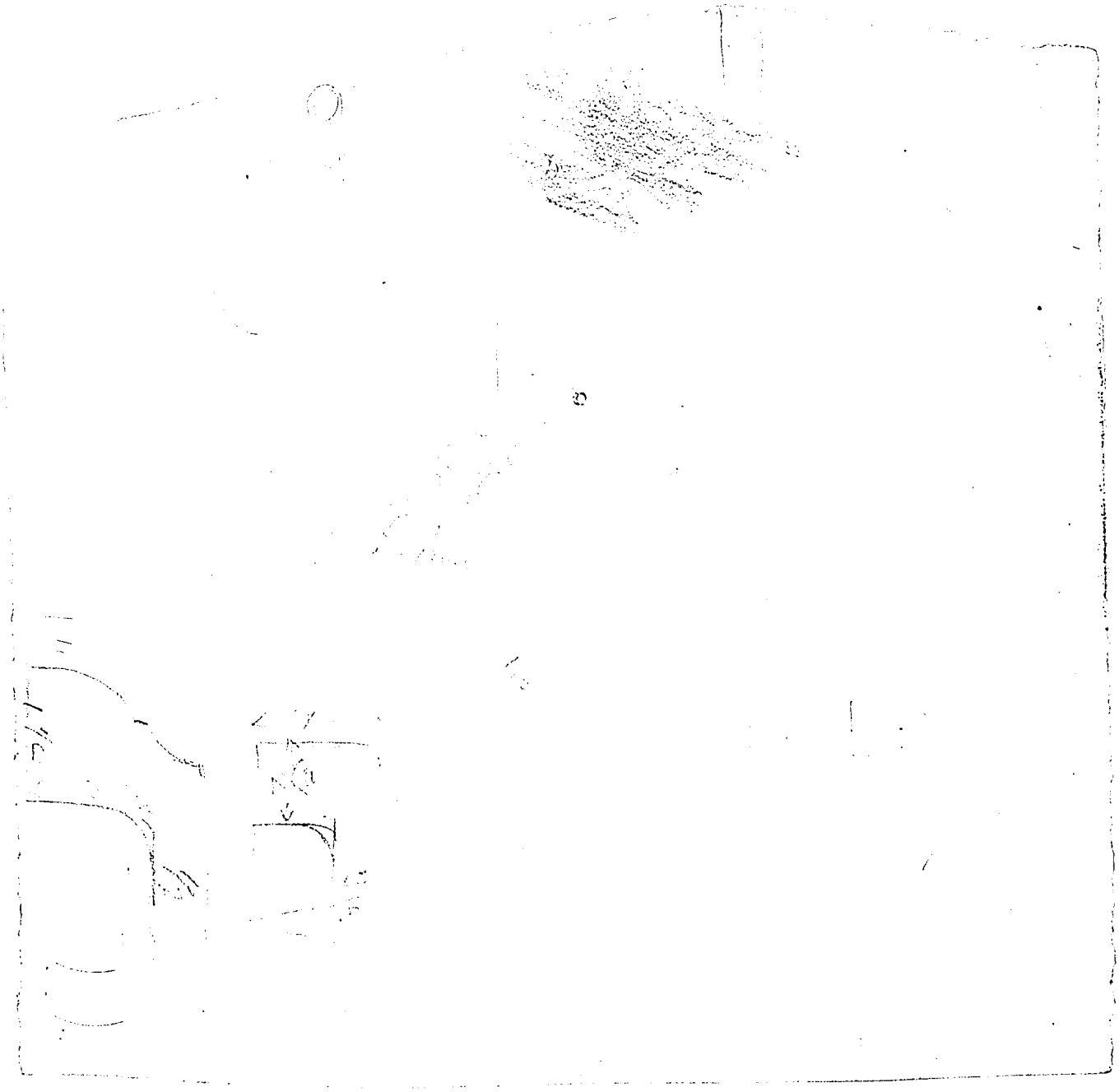


47②

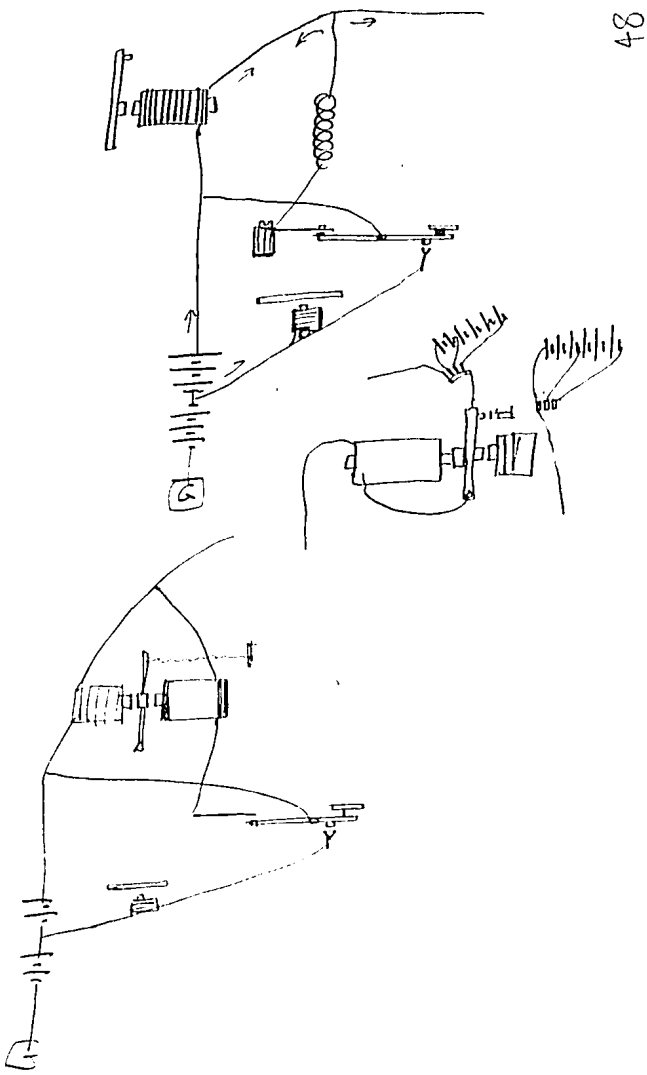





481



48 2



48

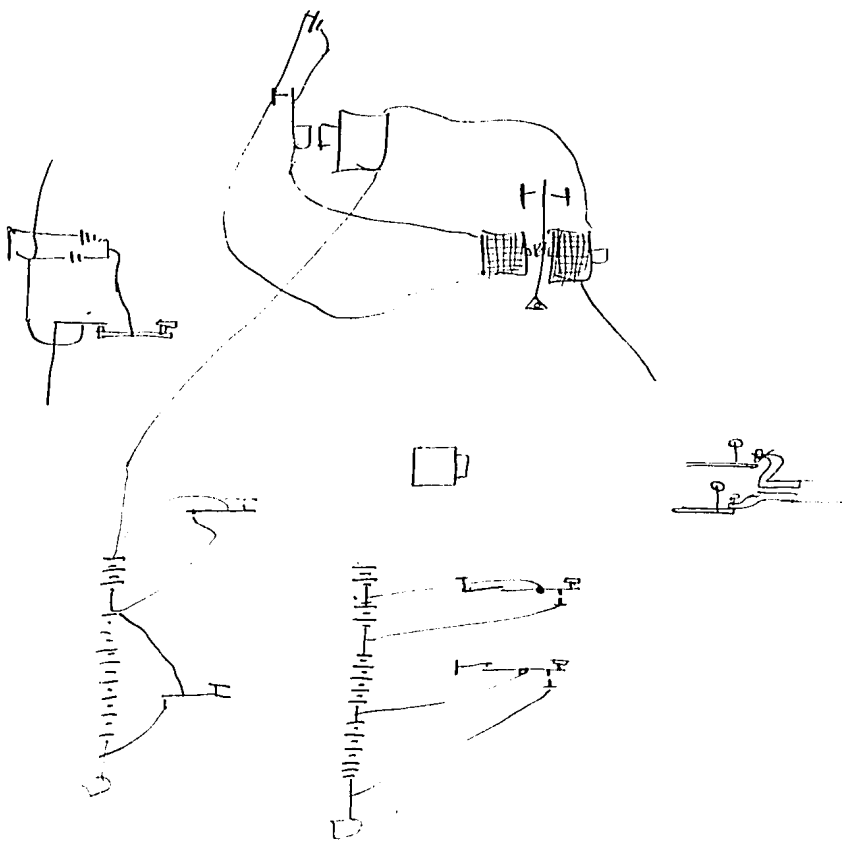
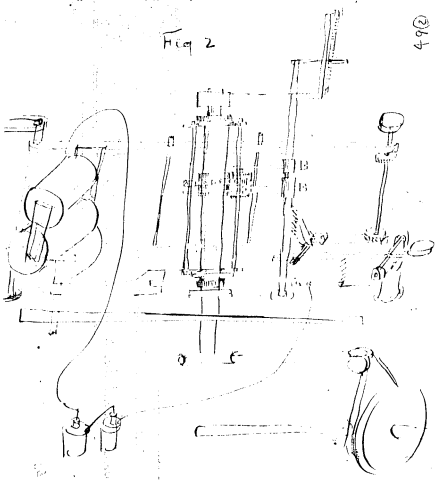
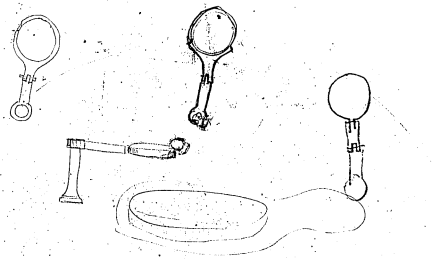
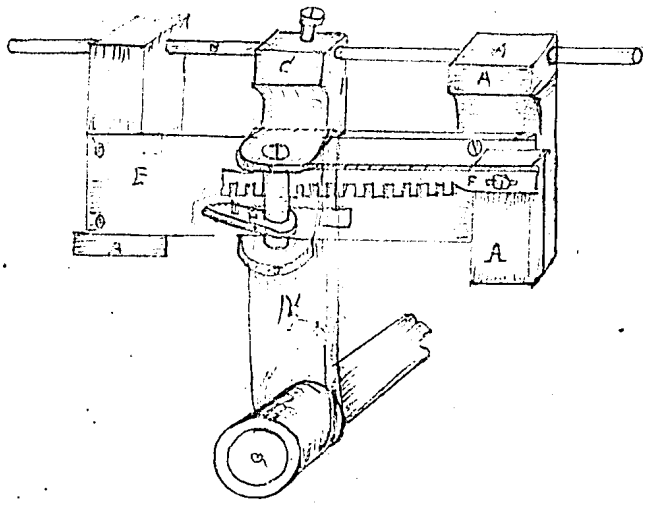
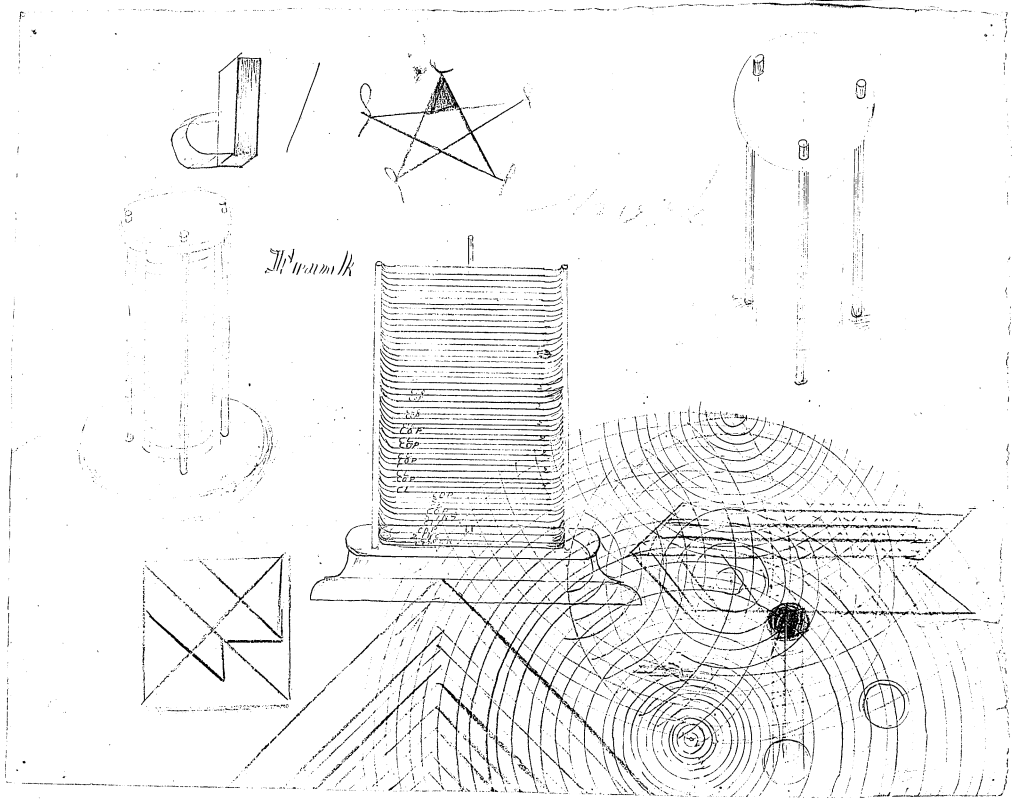


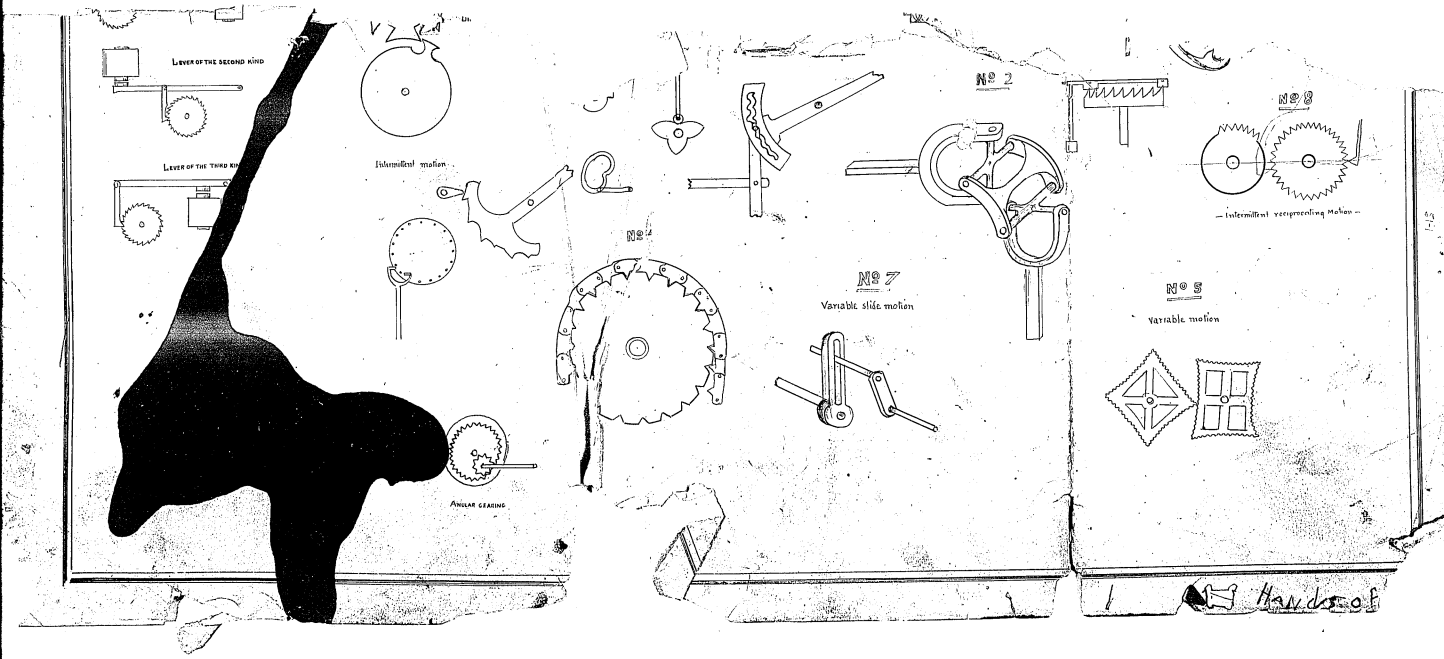
Fig 2

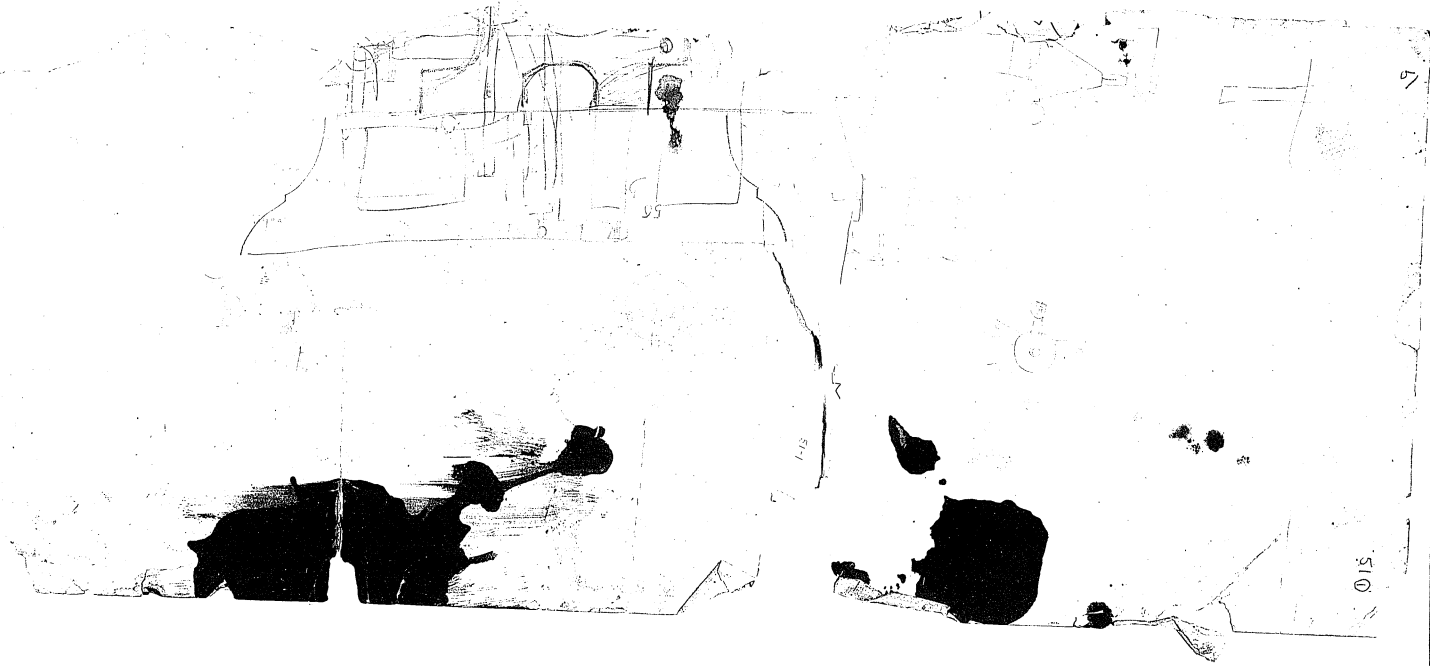


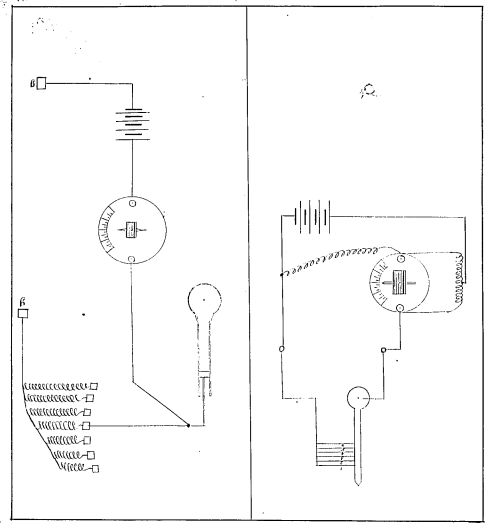



C
A
E
F
A




Lever of the second kind
Lever of the third kind
Intermittent motion
Nº 4
Nº 7
Variable slide motion
Nº 2
Nº 8
Intermittent reciprocating Motion
Nº 5
Variable motion
Angular gearing
Hands of

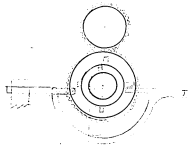


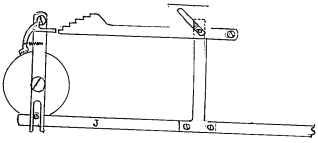


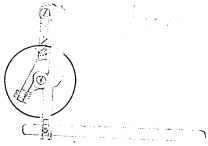
52①

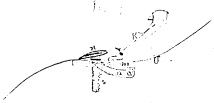
52②

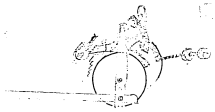
52

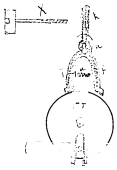


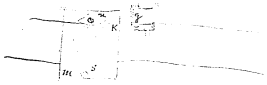


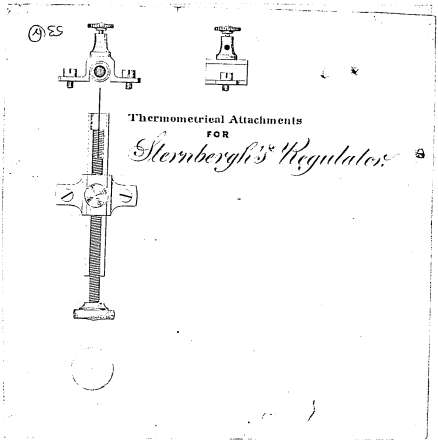




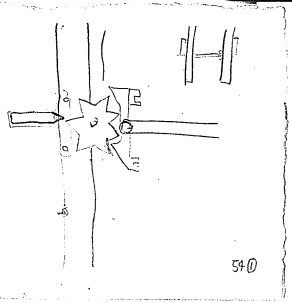


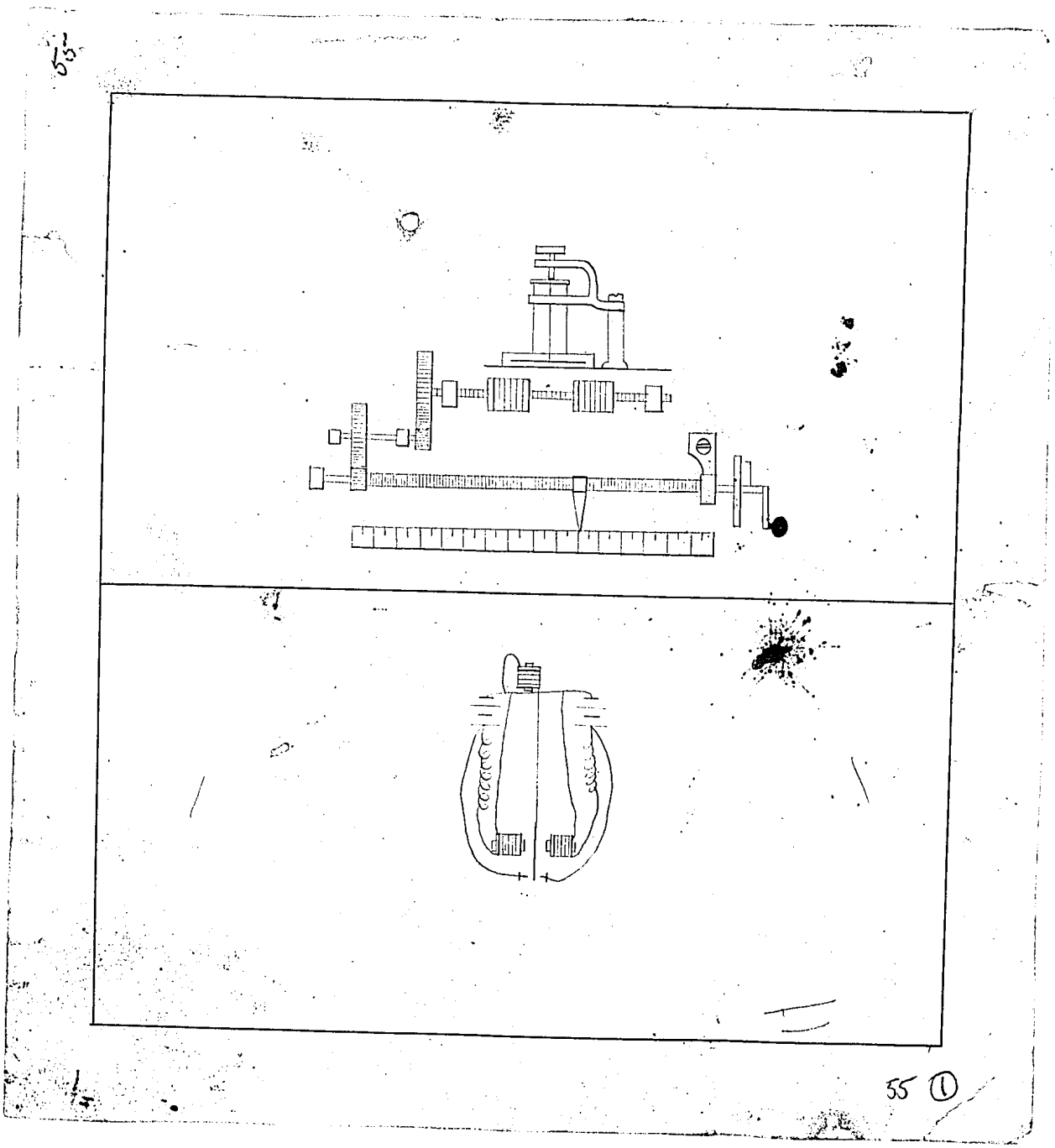




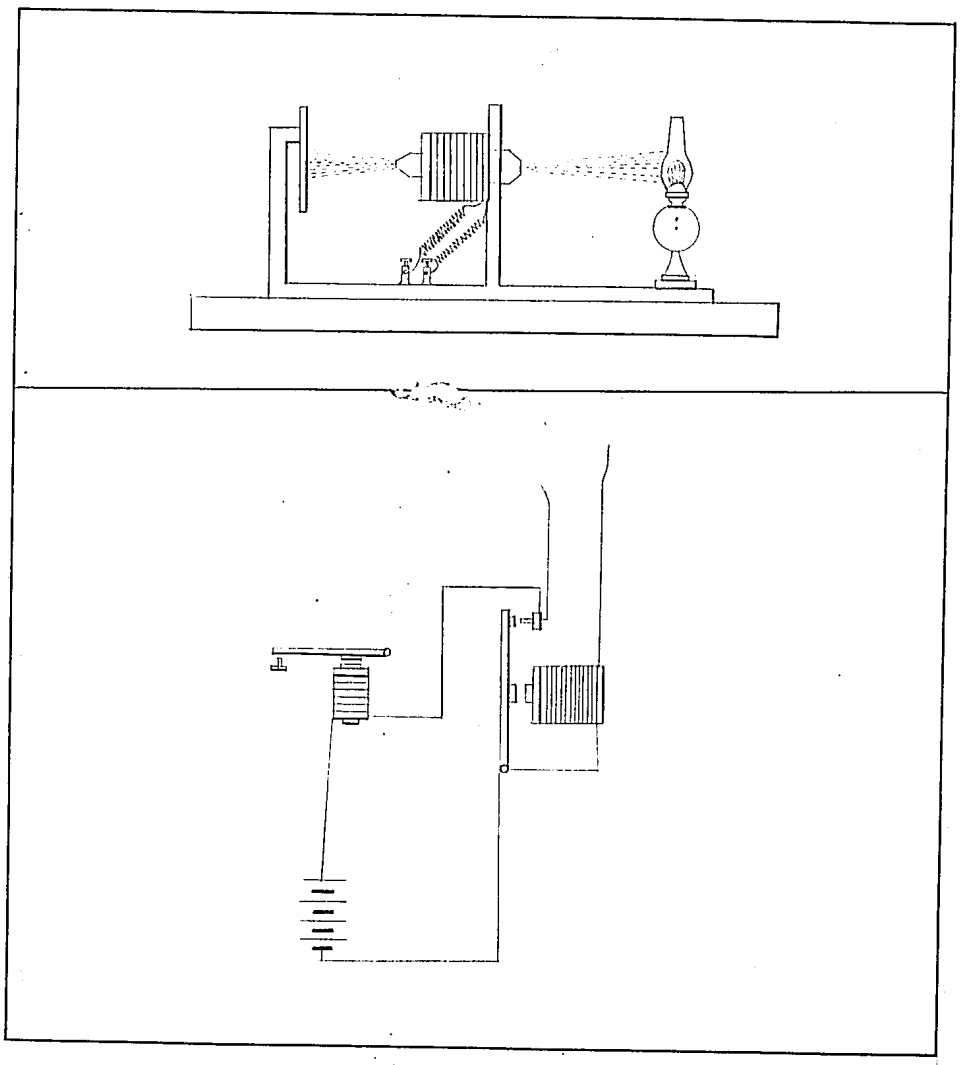


53

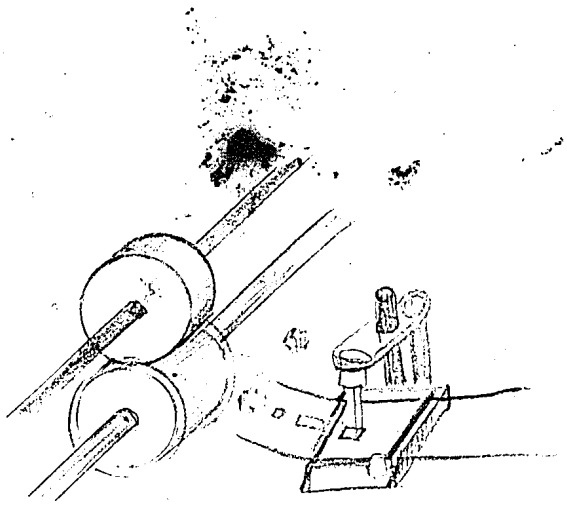

54Ø

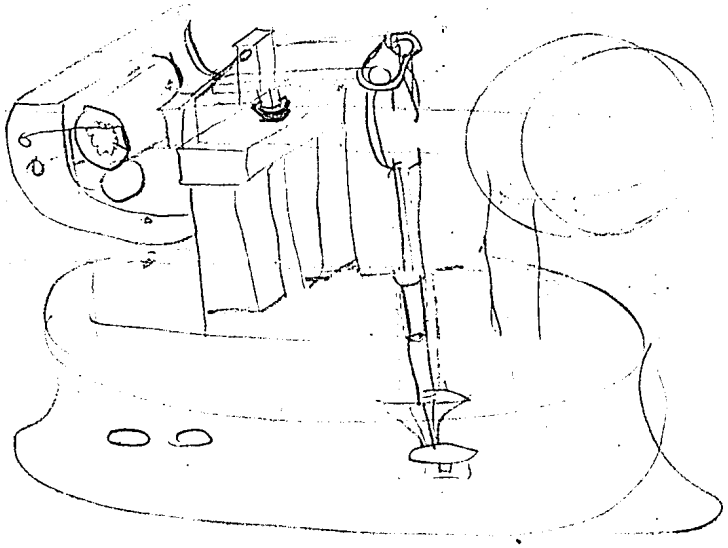


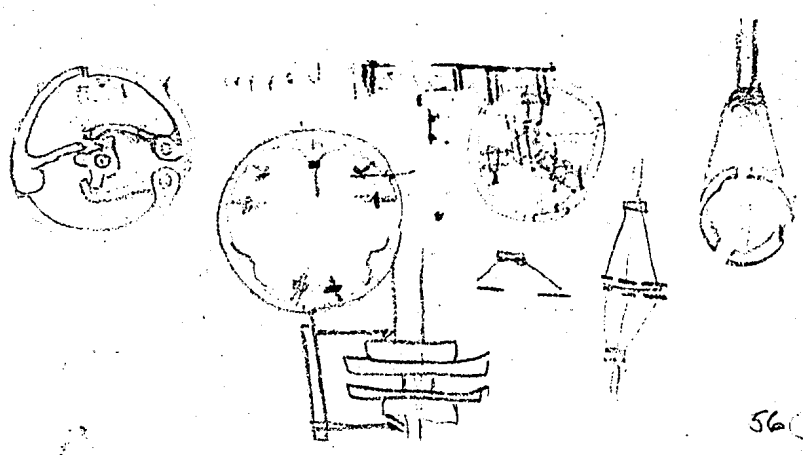
55



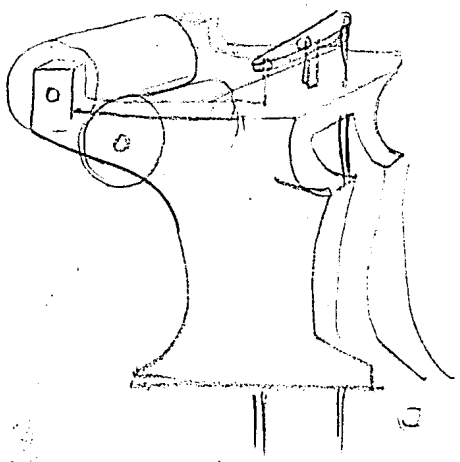
55







56



ESTABLISHED 1834.

NATHAN LANE,

Beaver Street, New York,

STATIONER, PRINTER, LITHOGRAPHER,

AND

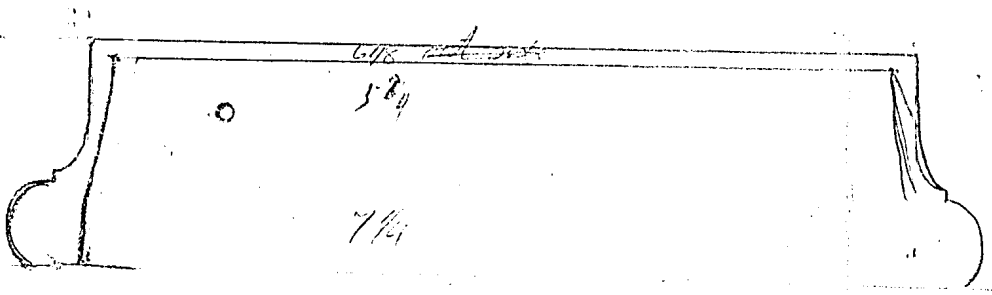
BLANK BOOK MANUFACTURER.

A full assortment of Foreign & Domestic Stationery constantly on hand.

No Blank Books are made in the United States or Europe, superior in Quality, Style and Finish to those manufactured by me.

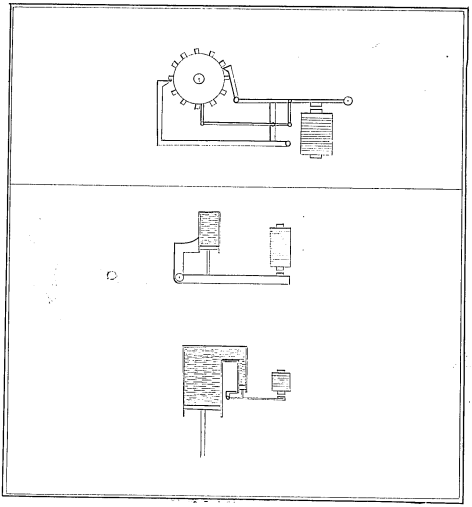
56

Page 57

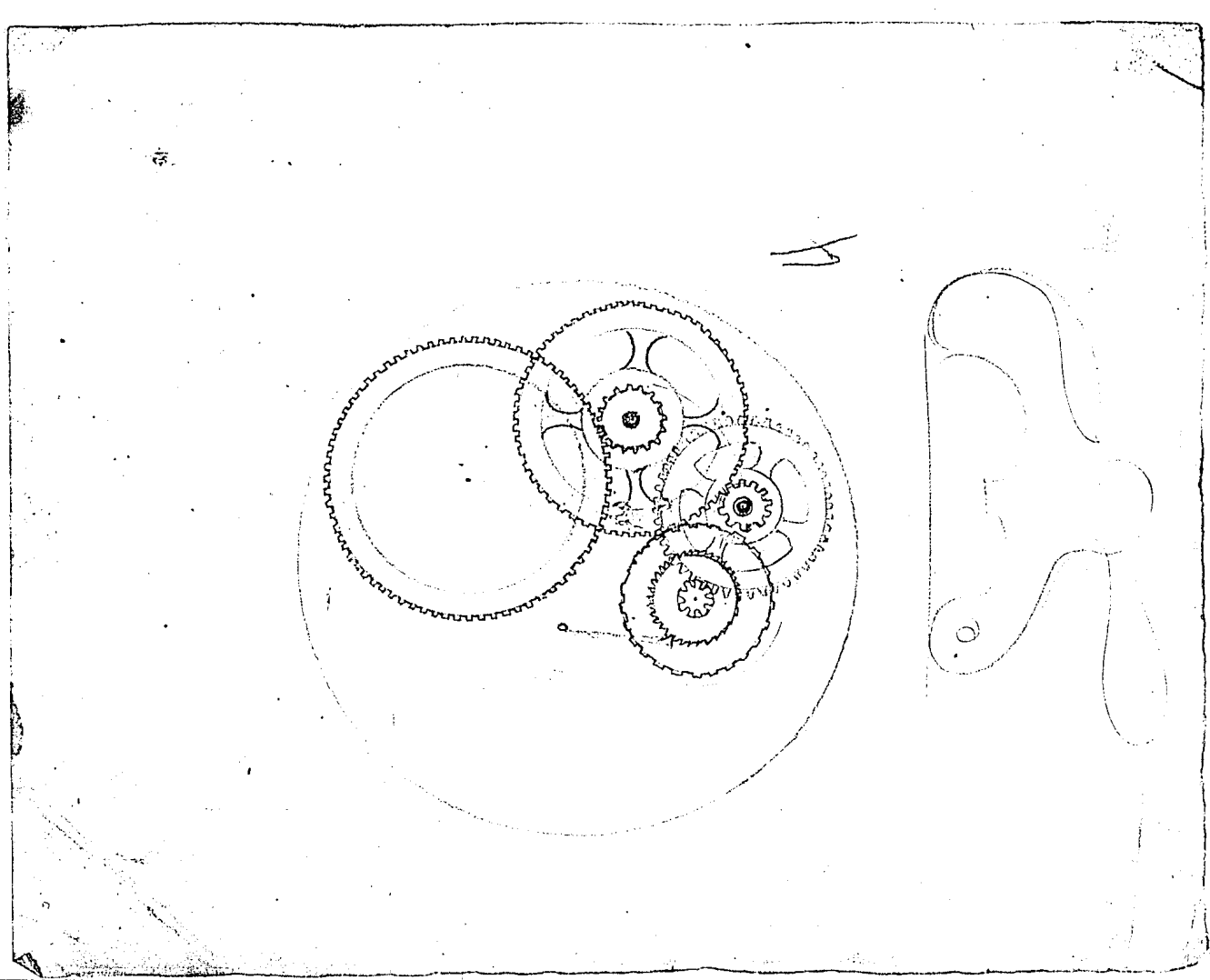


57 ①

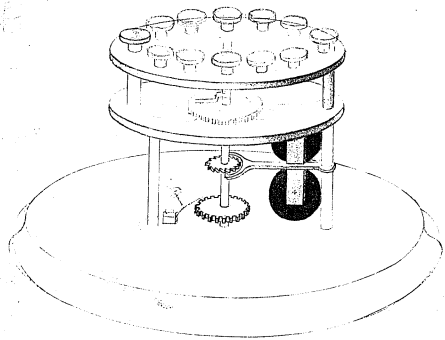
57



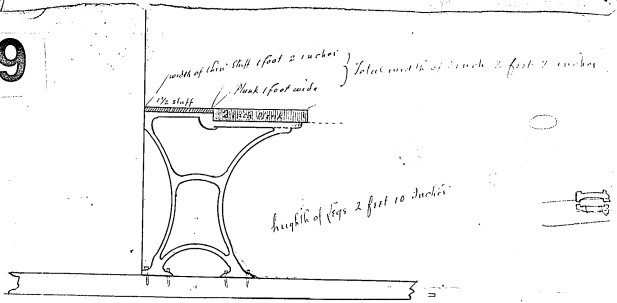
58



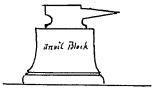
365

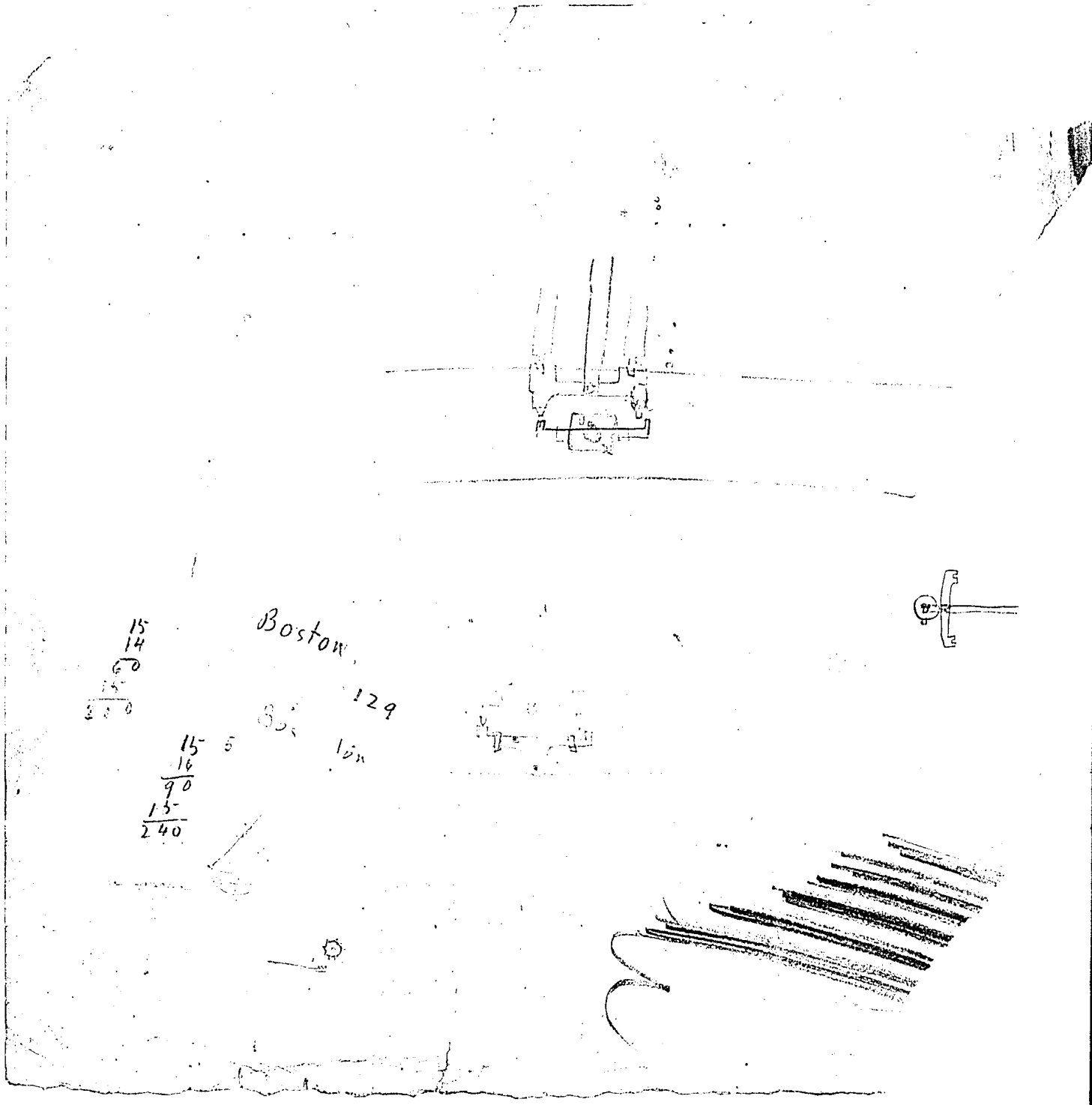


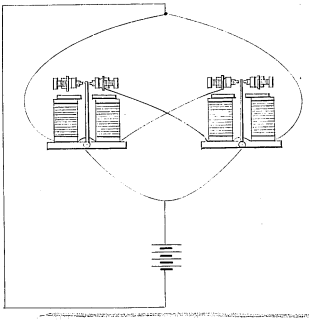
59

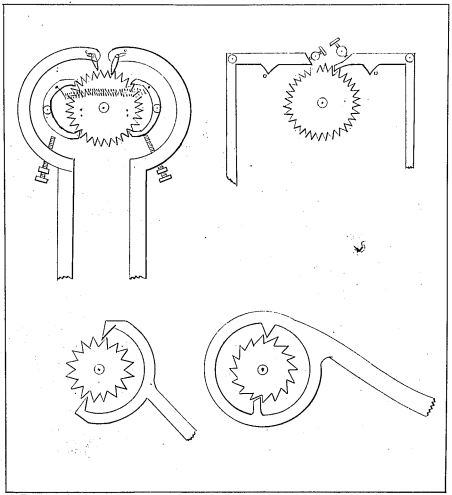

width of Shrs Shall 1 foot 2 inches
Plank 1 foot wide
1½ staff
Total width of Frame 2 feet 7 inches
height of Legs 2 feet 10 Inches

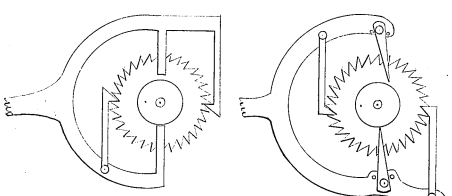
Wrigley will furnish Legs from this design at 4½ per pound



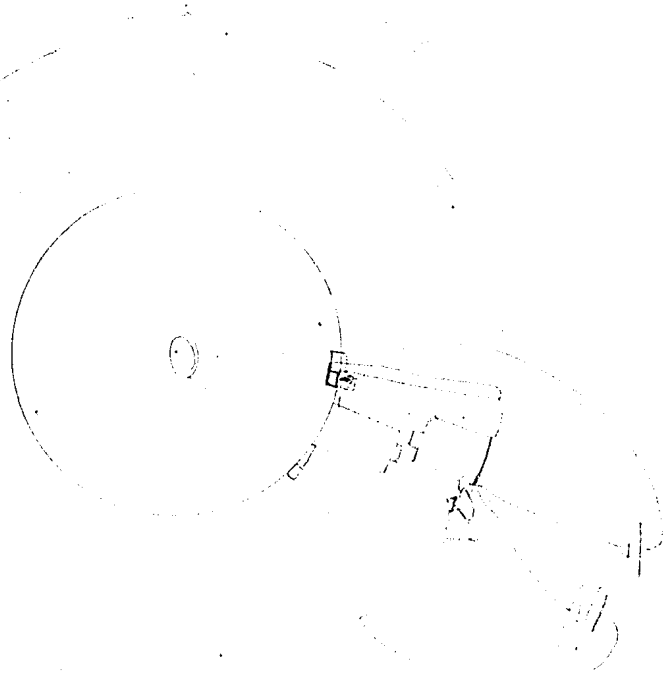

15
14
60
15
300
Boston
129
15
16
90
15
240







61



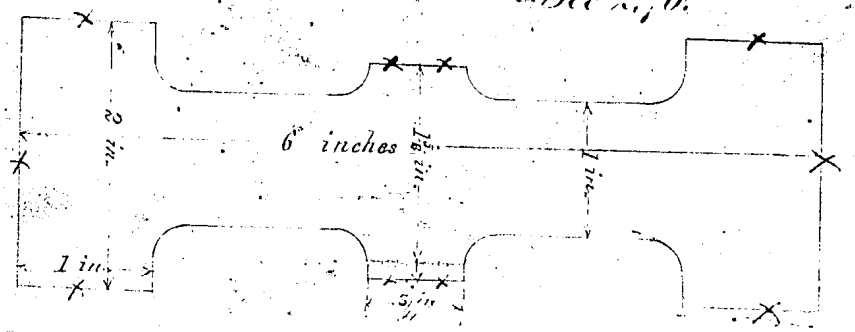
62

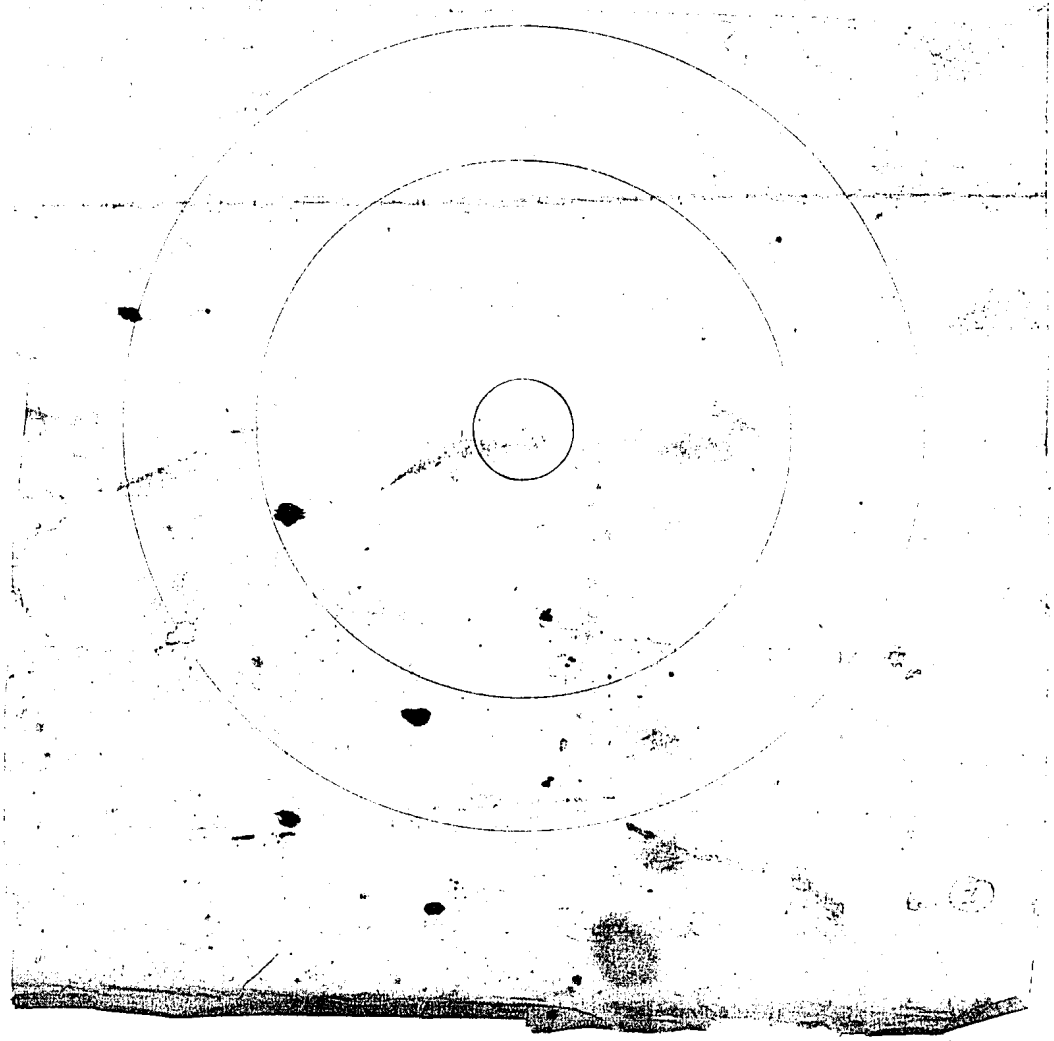
62①

Fly Wheel

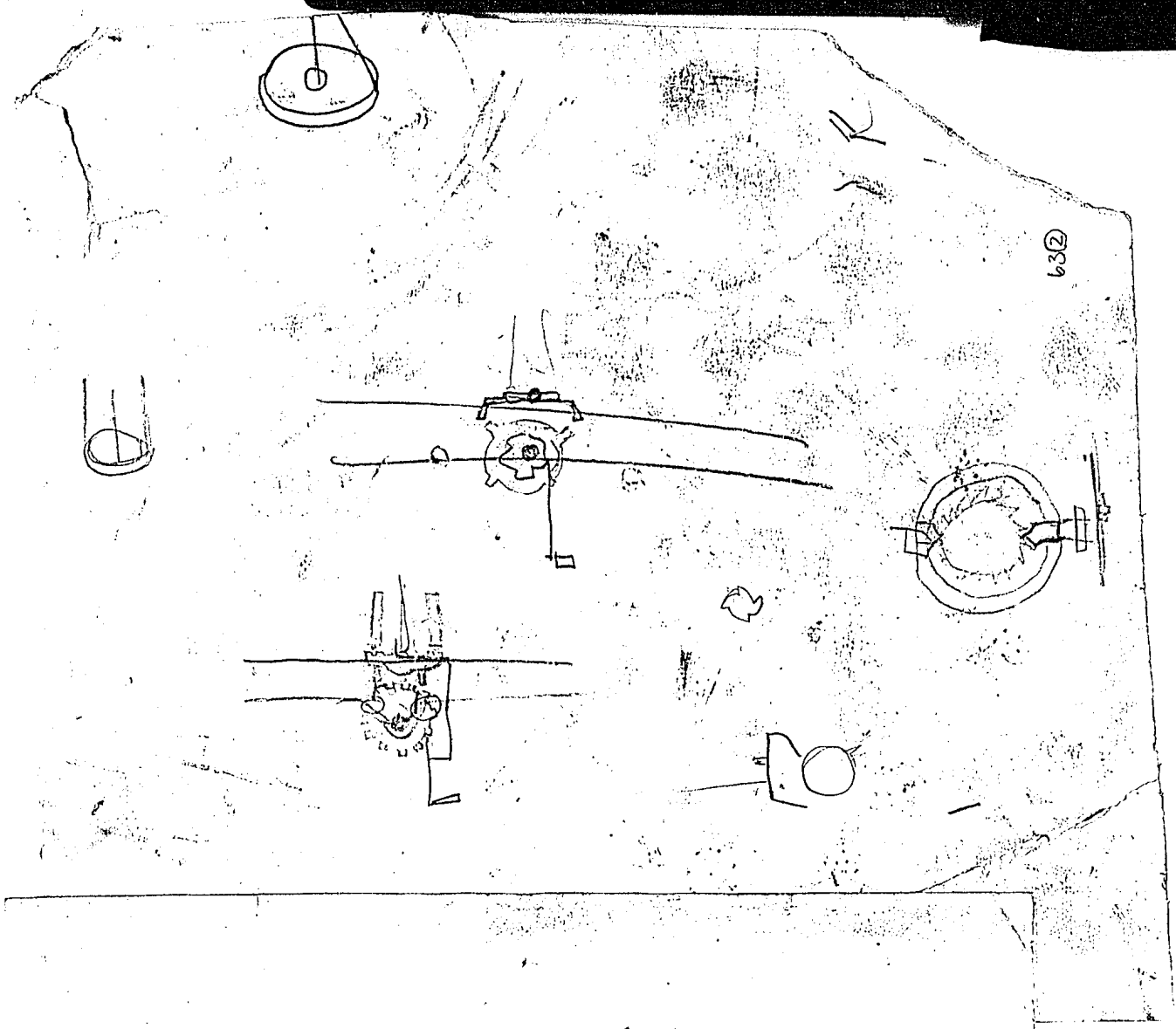
American Telegraph Works.

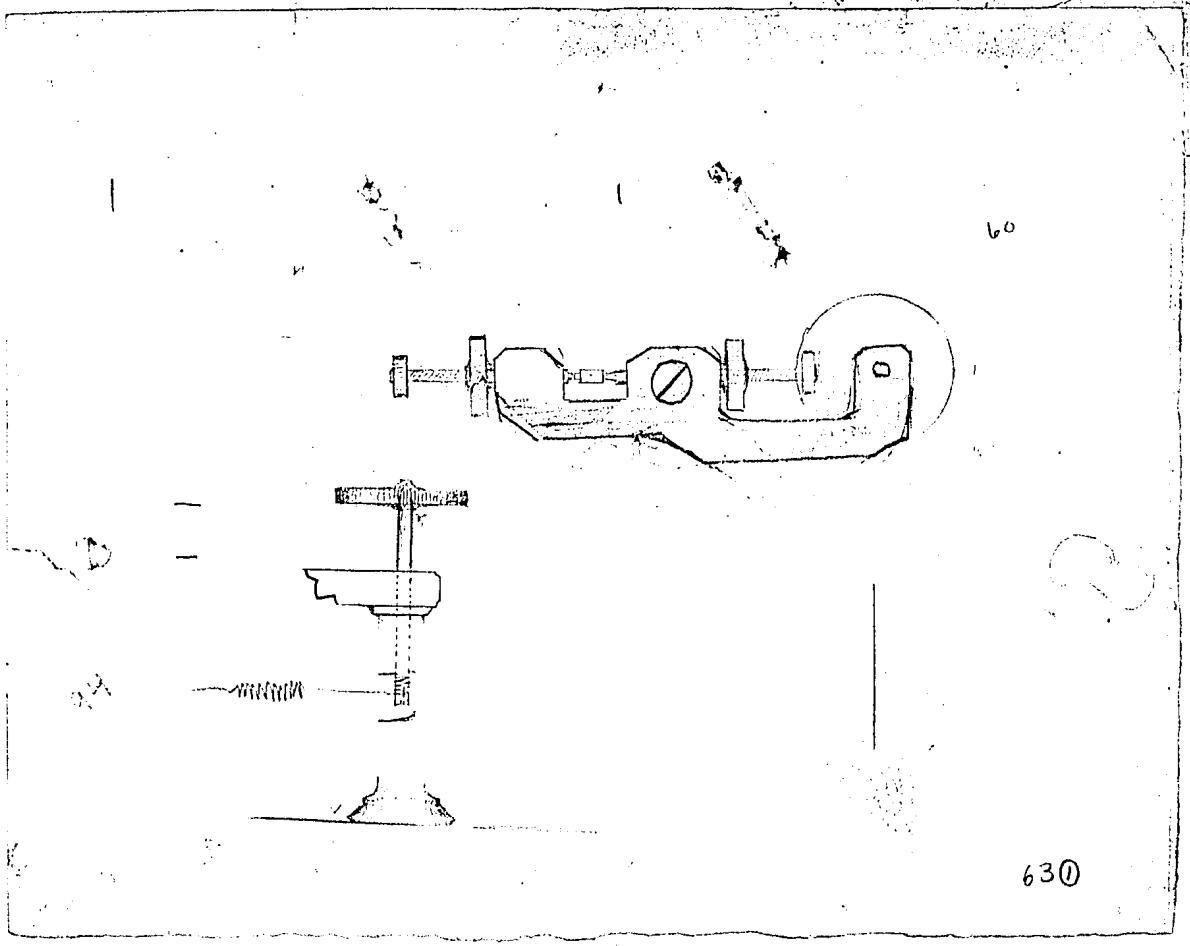
Newark N.J. Dec 2, 70.

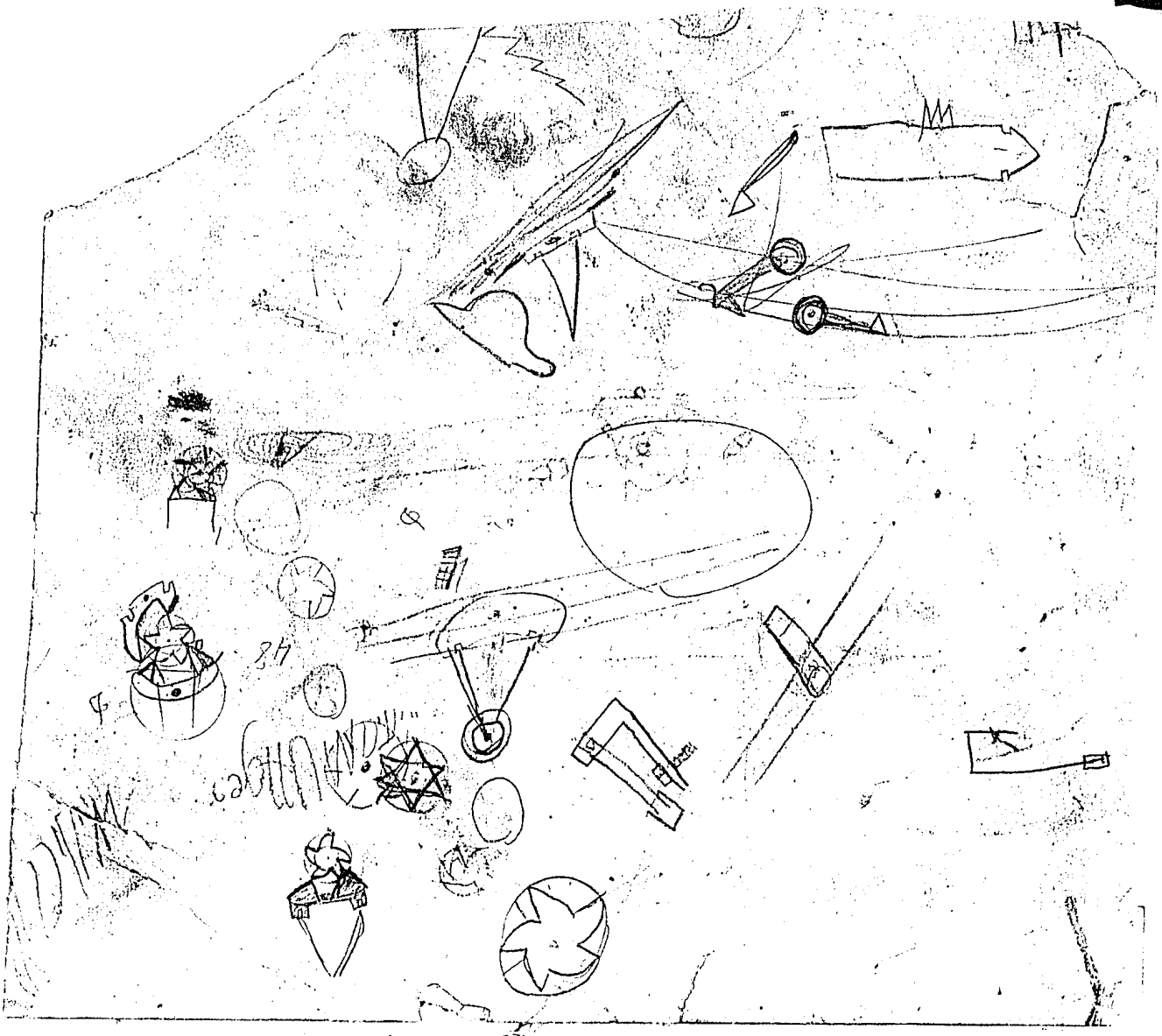




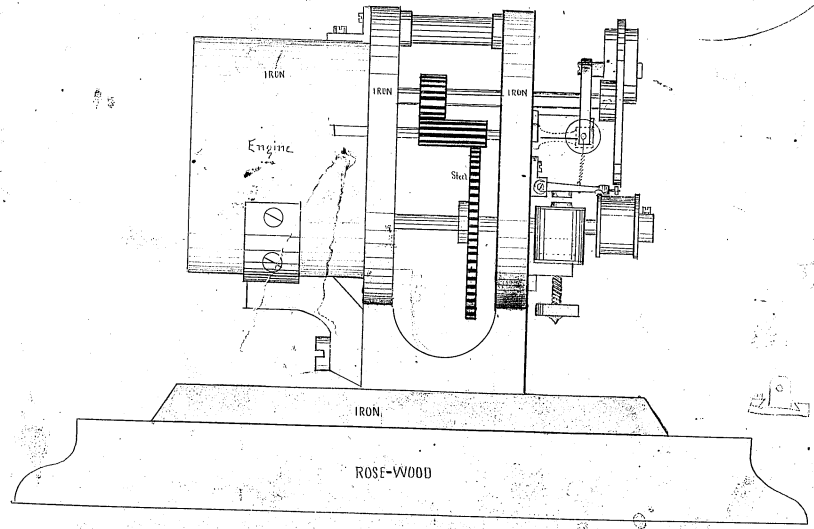
62

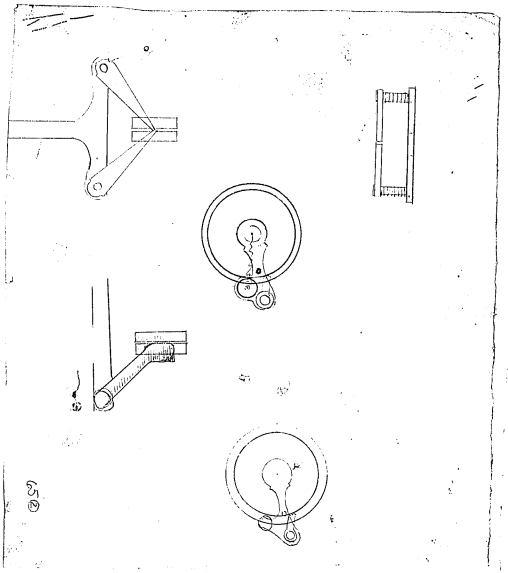

630

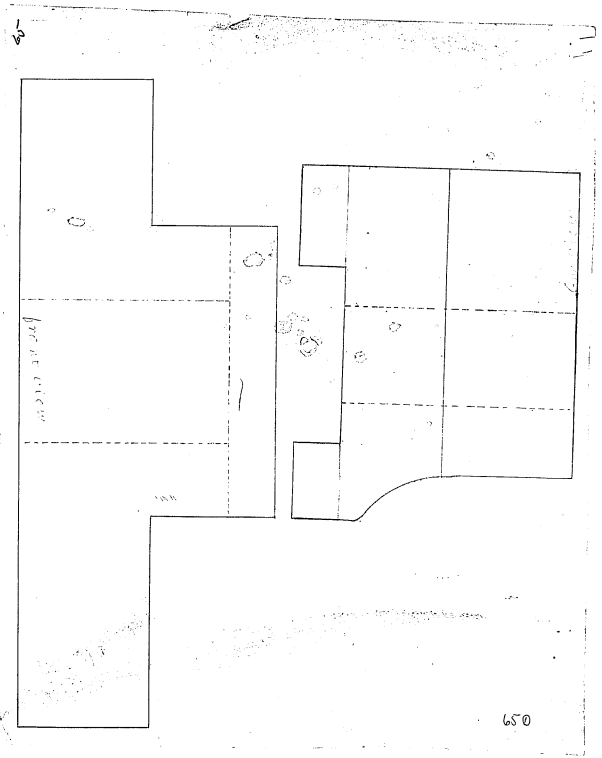

60
630



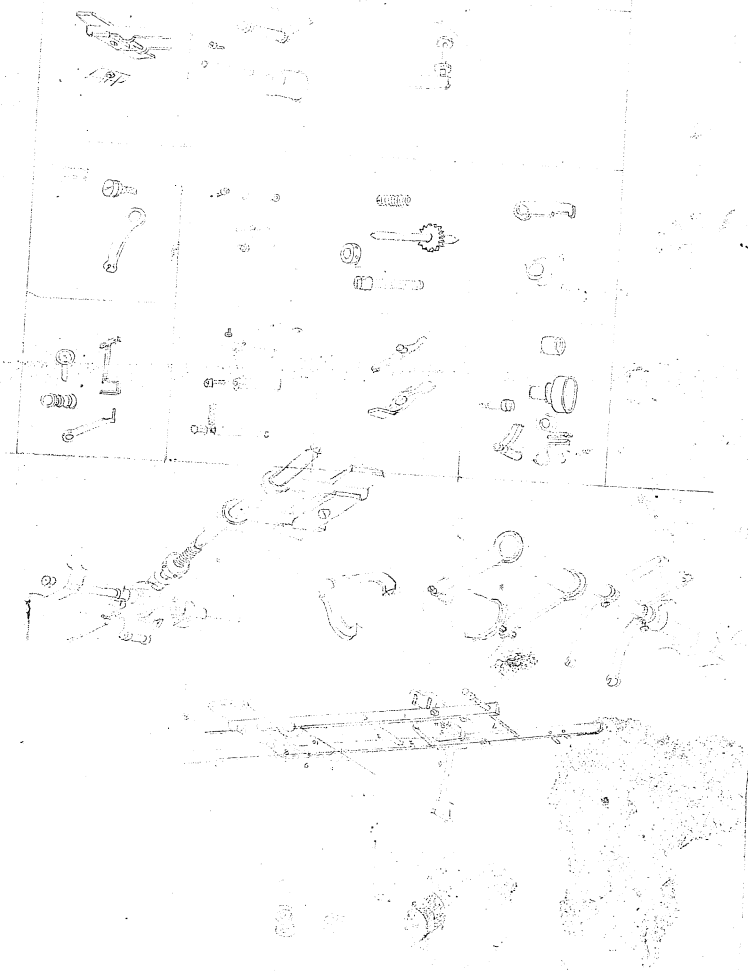
049

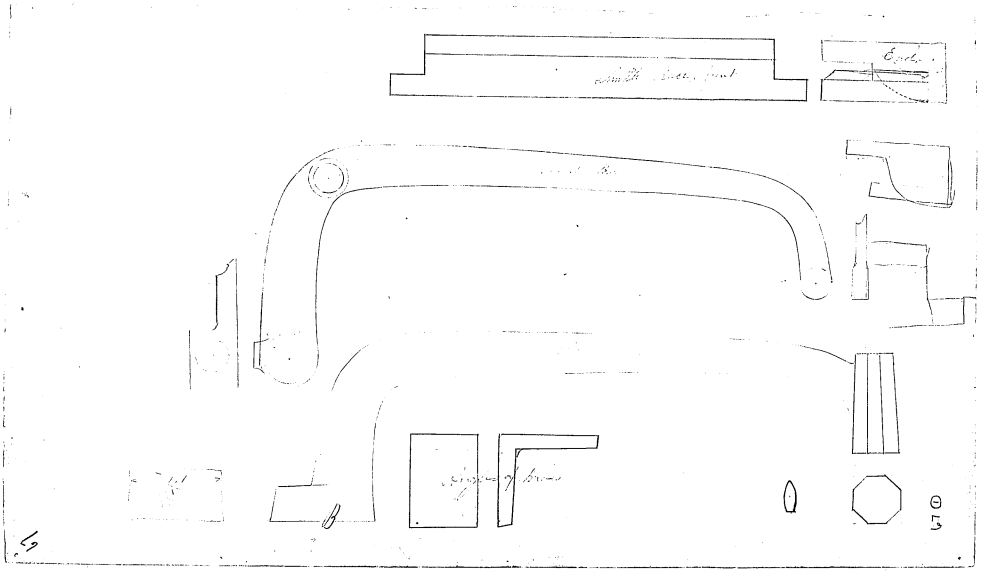


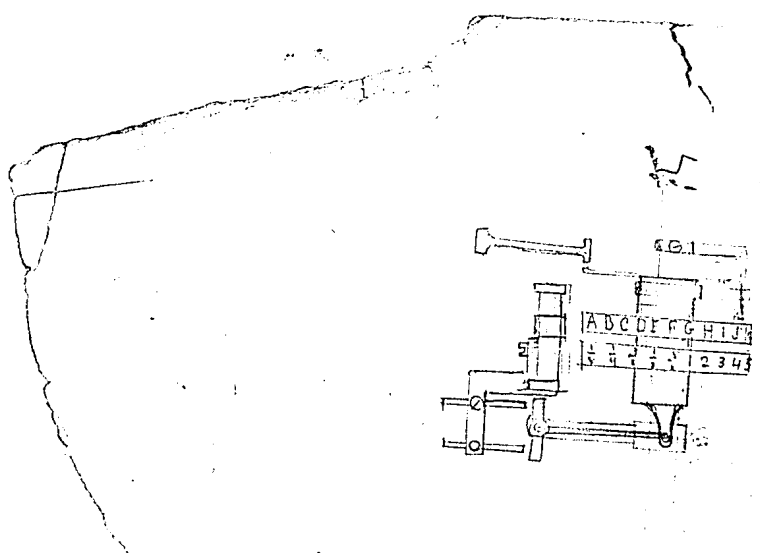




99



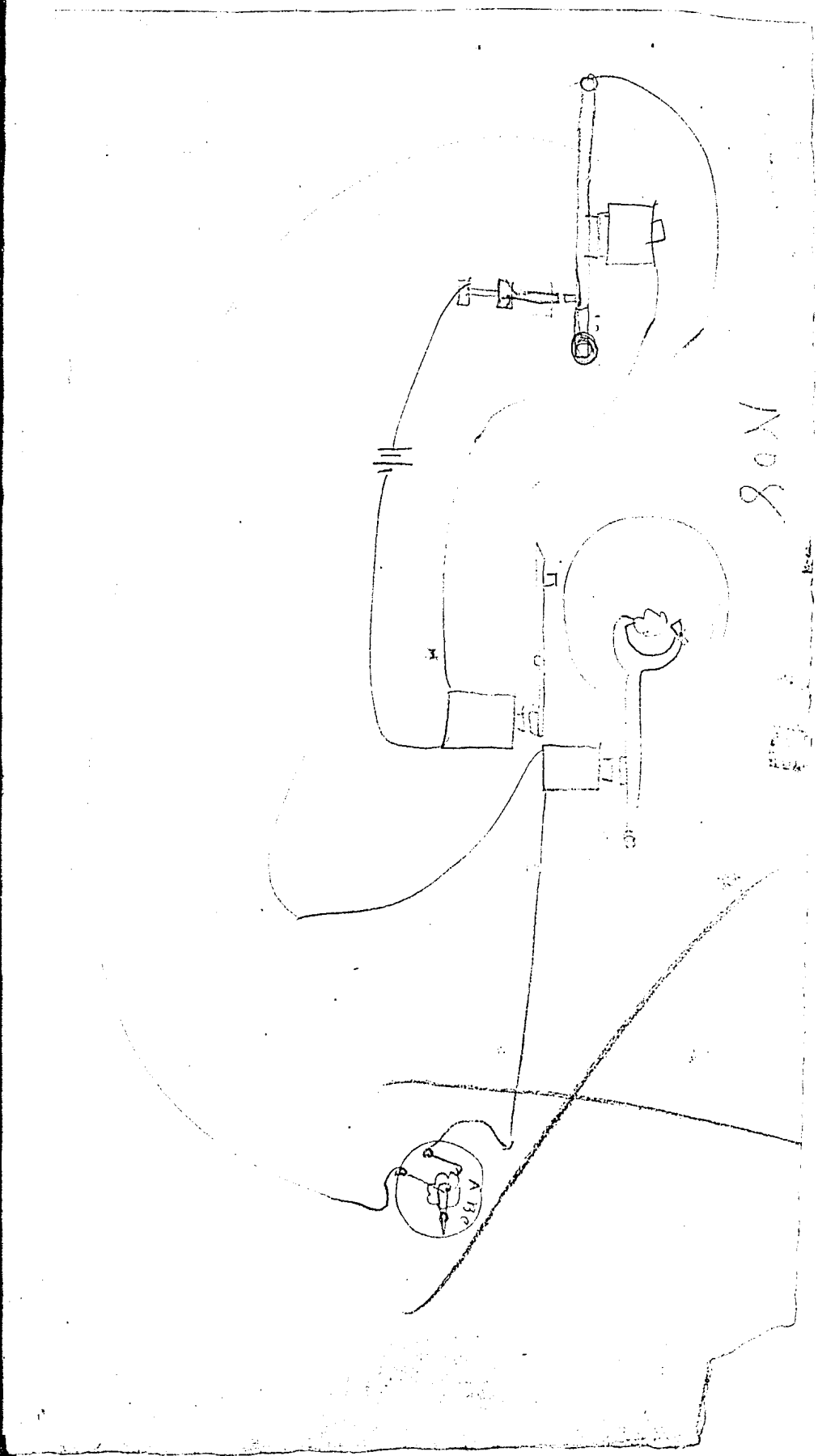


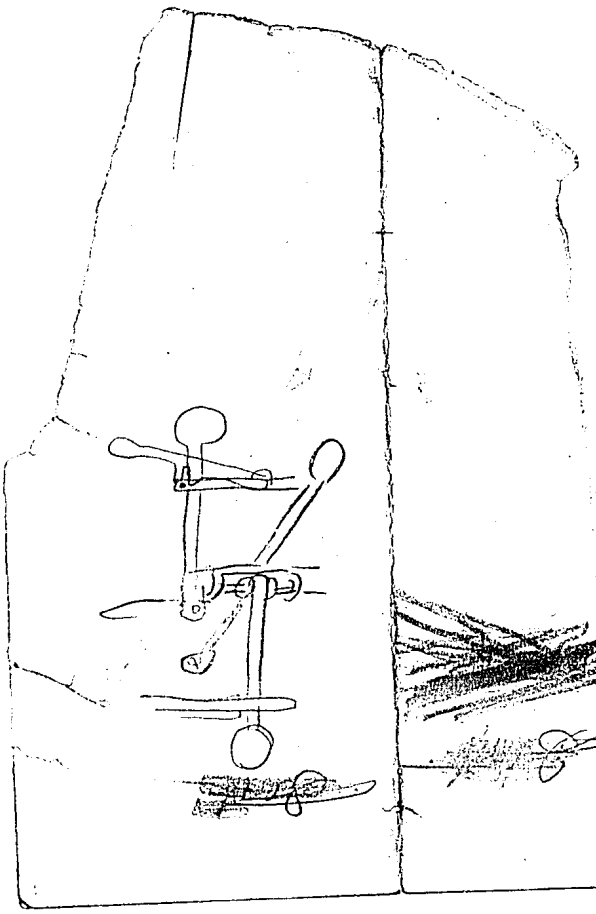


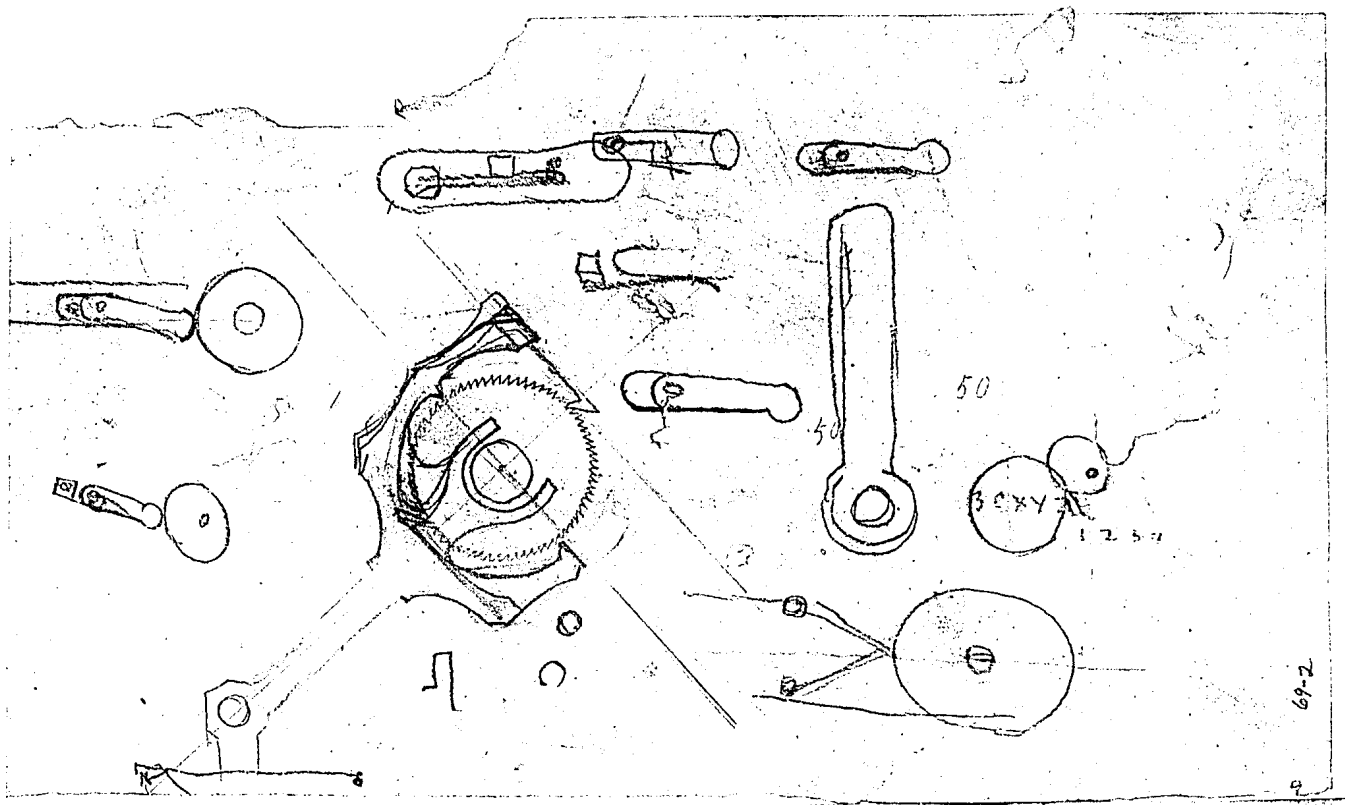
68

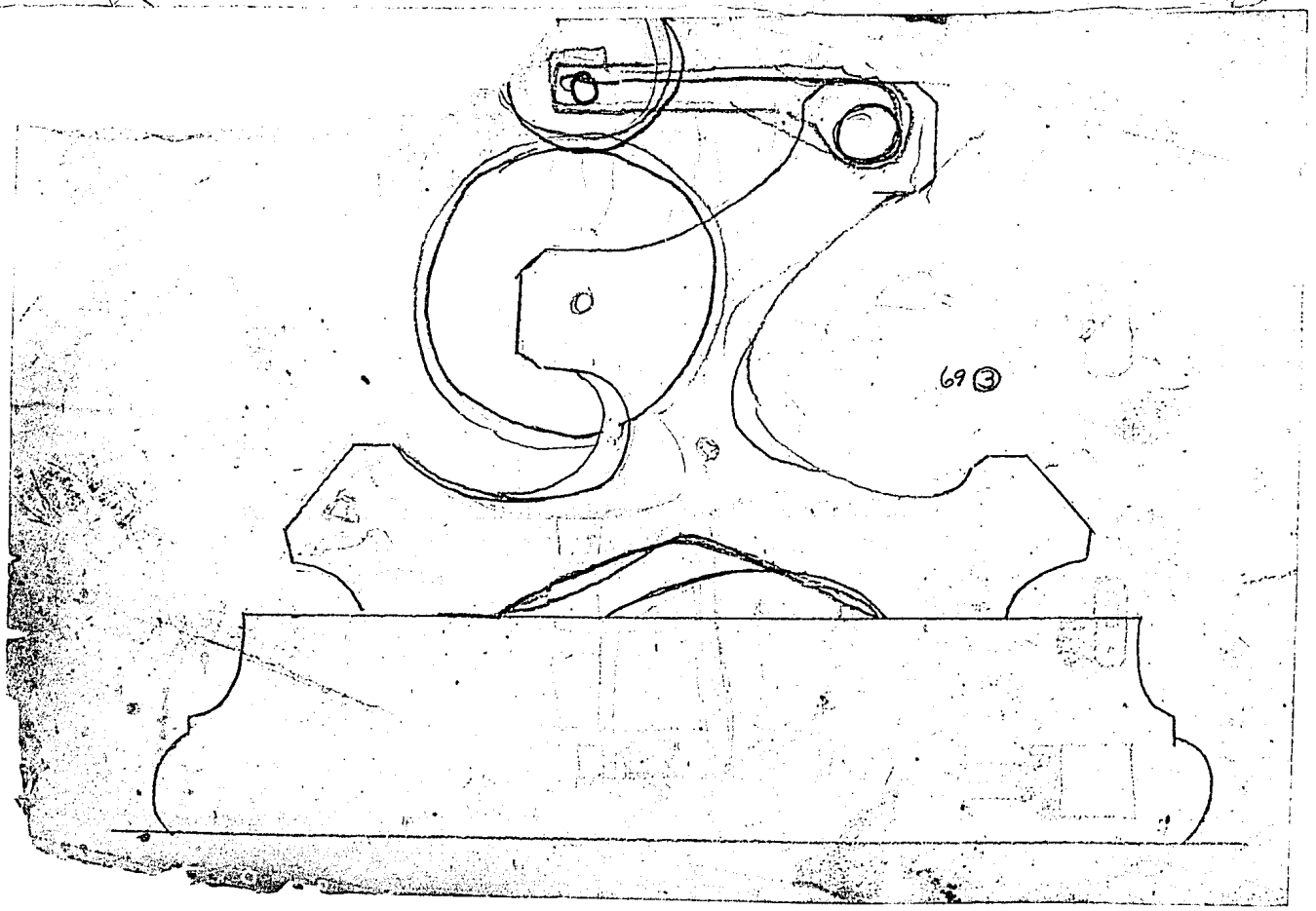
68D

68D






50
50
69-2


69③

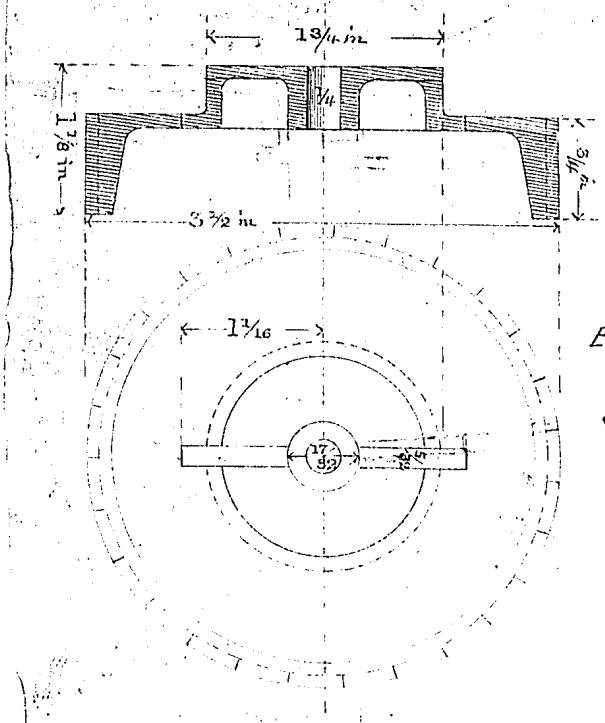
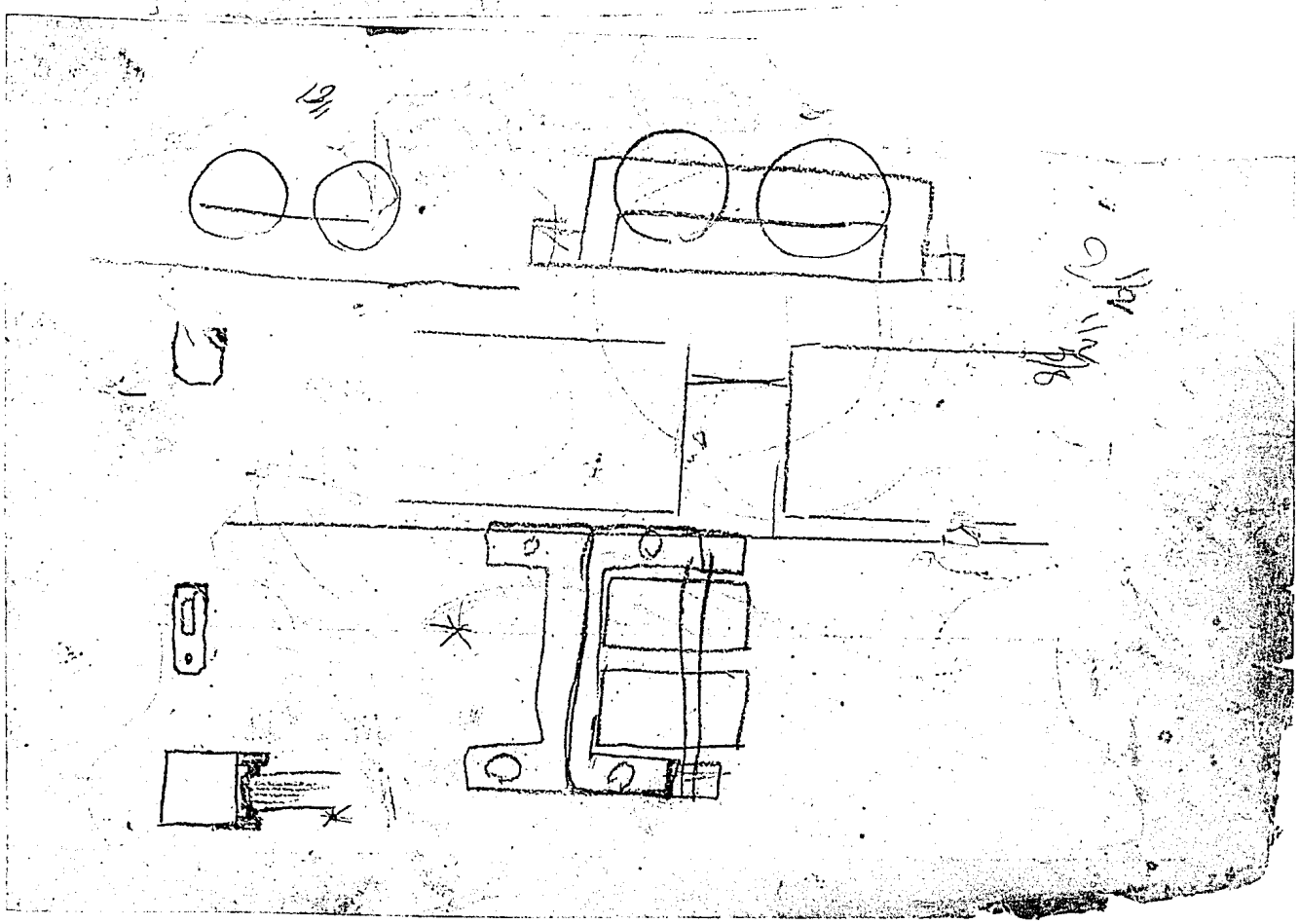
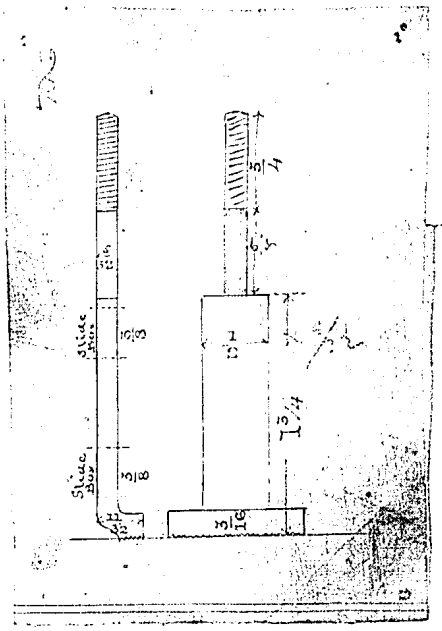


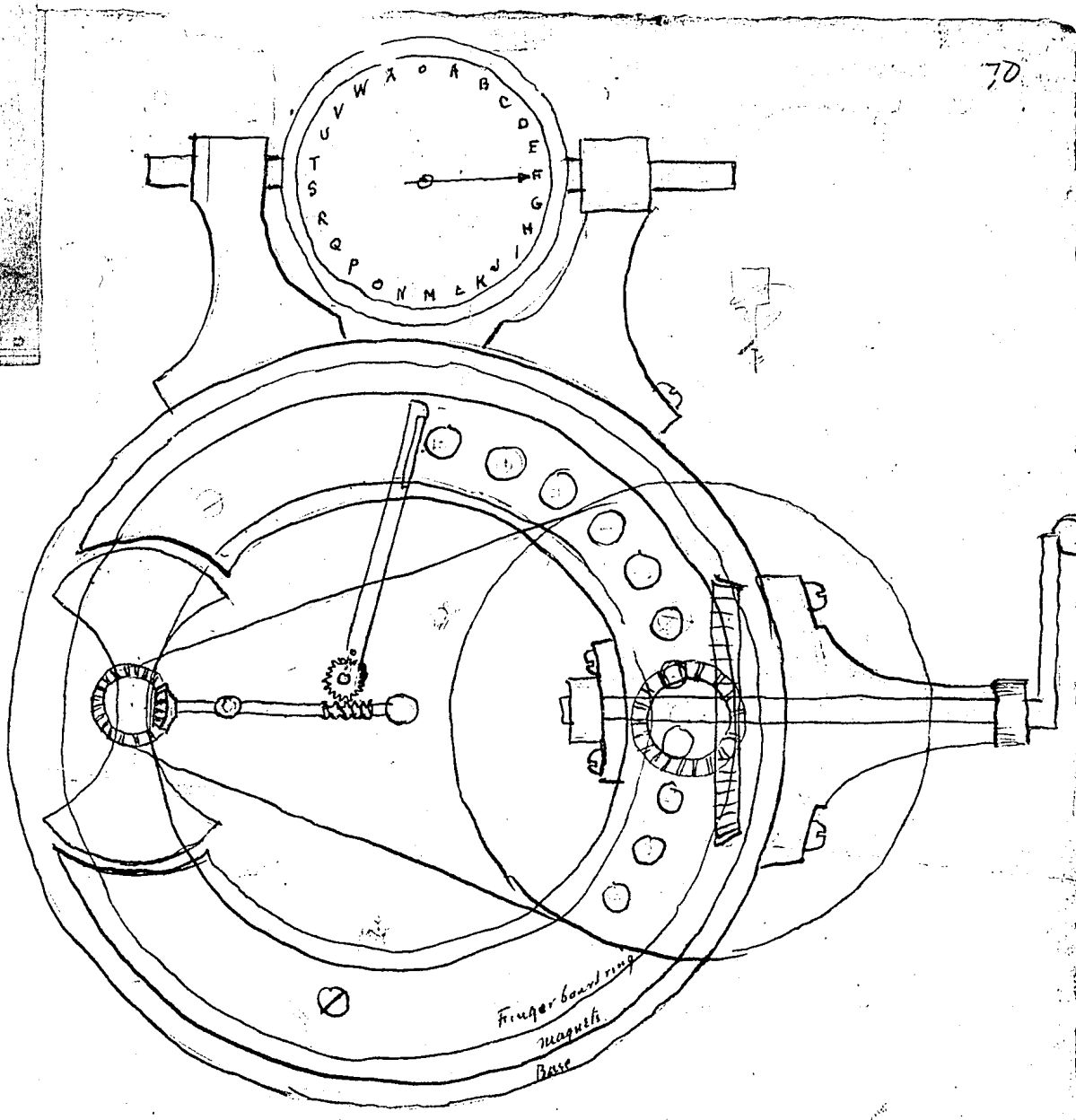
DIAGRAM of
Embossing Wheel.

Scale - full size





70

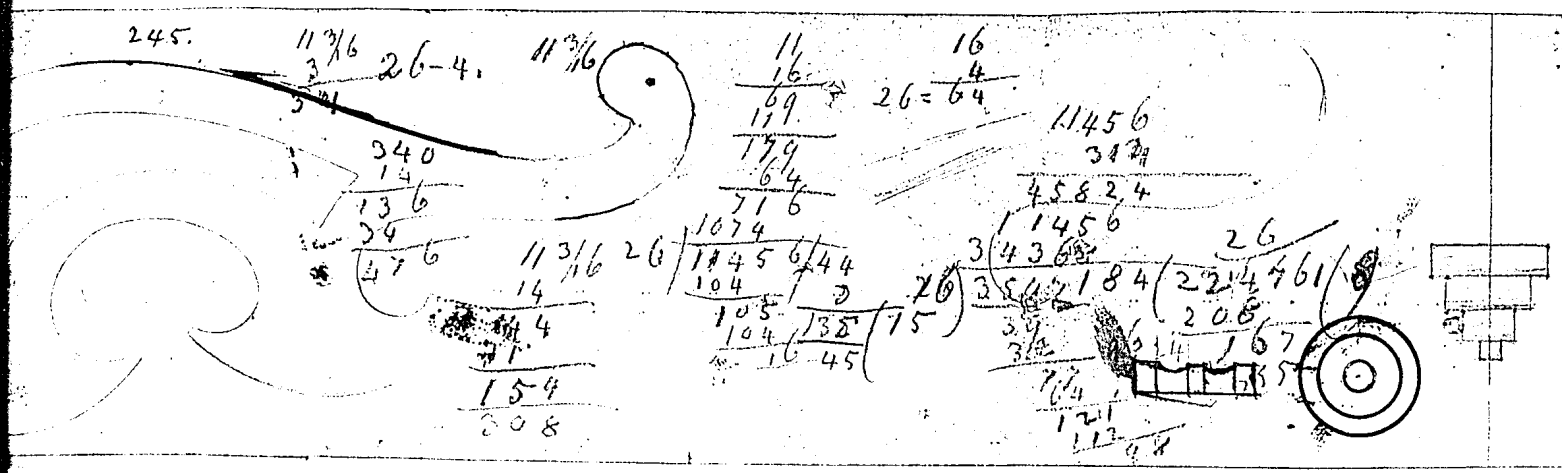


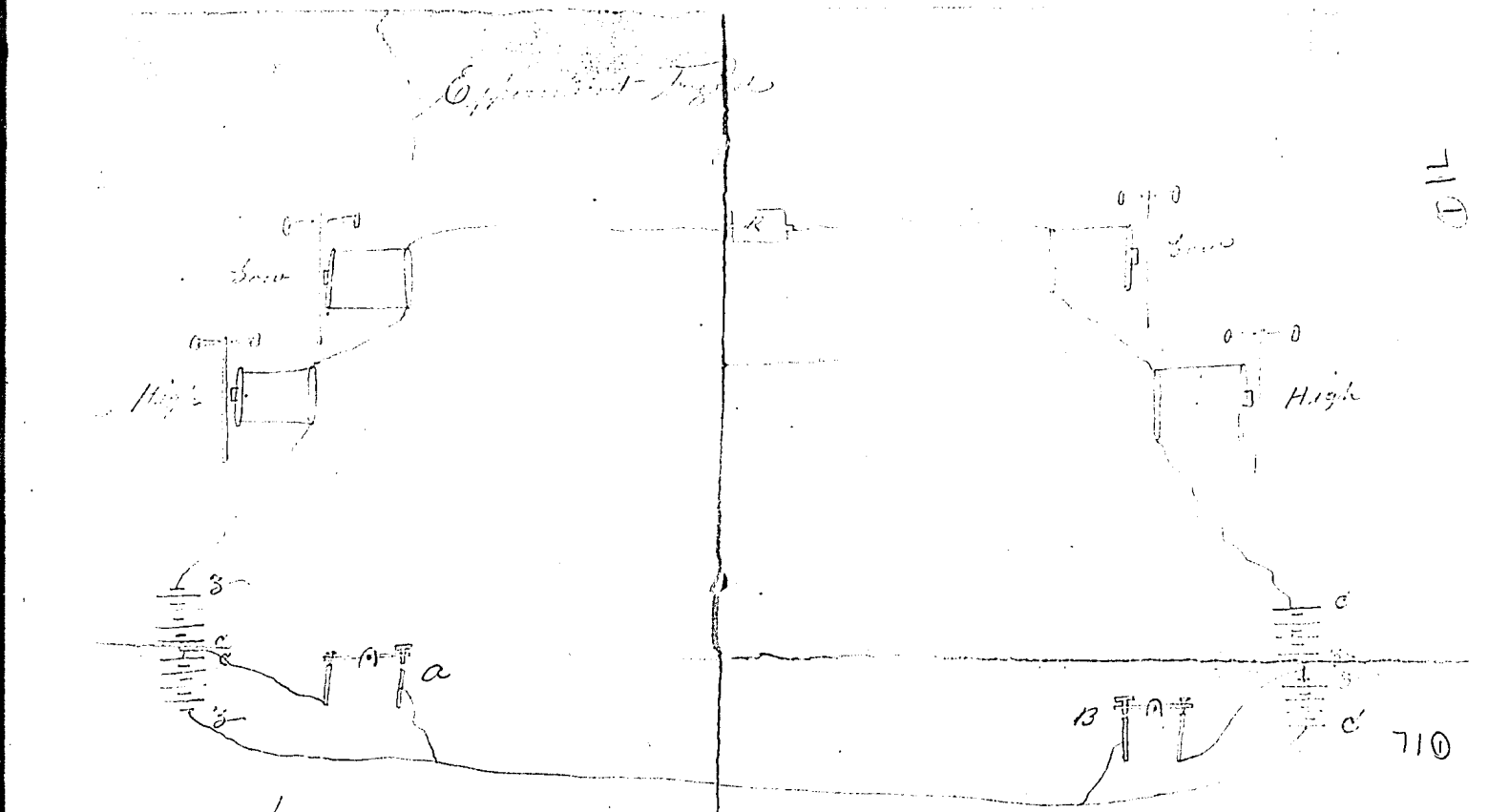
Magneto Electric Telegraph Apparatus

Invented July 23 1870.

William Augur
Martin Augur
Andrew Hyde

70



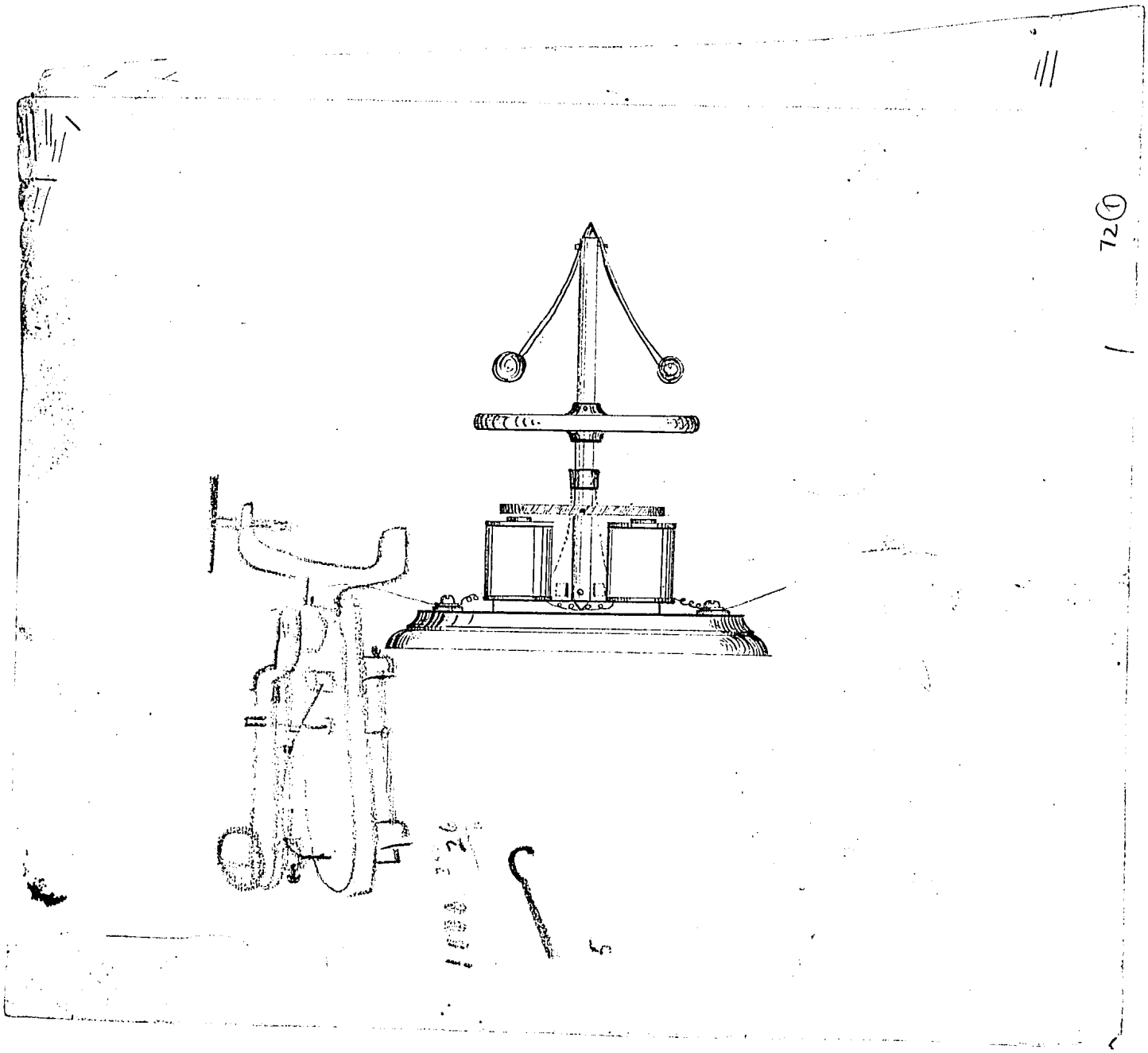


It works this way: Key 13 being closed: Work key a both rulings of high adjustment marks: Open key 13 and work a, both rulings of low adjustment marks 3 times each.

71

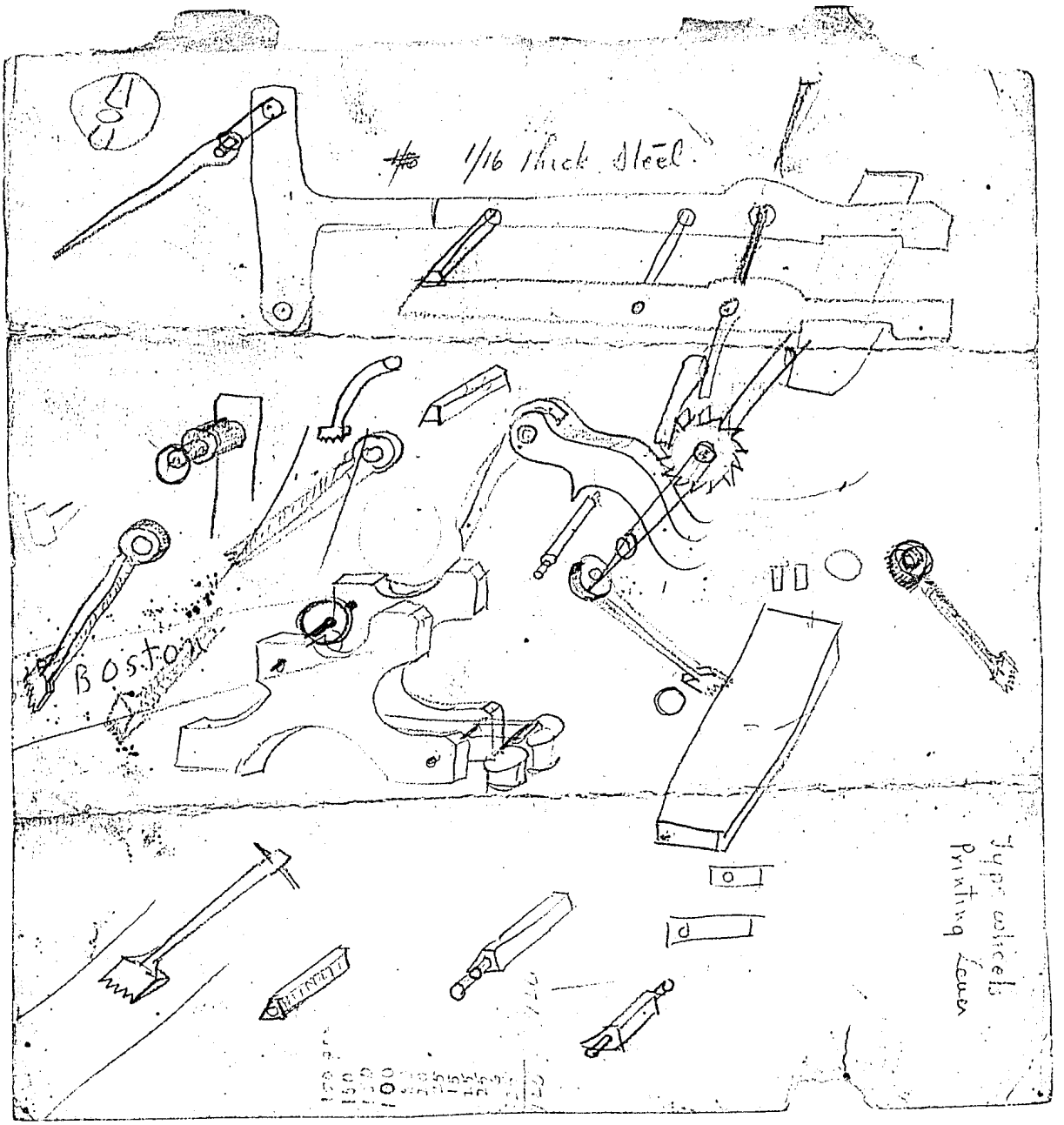
0 0 1 3 4

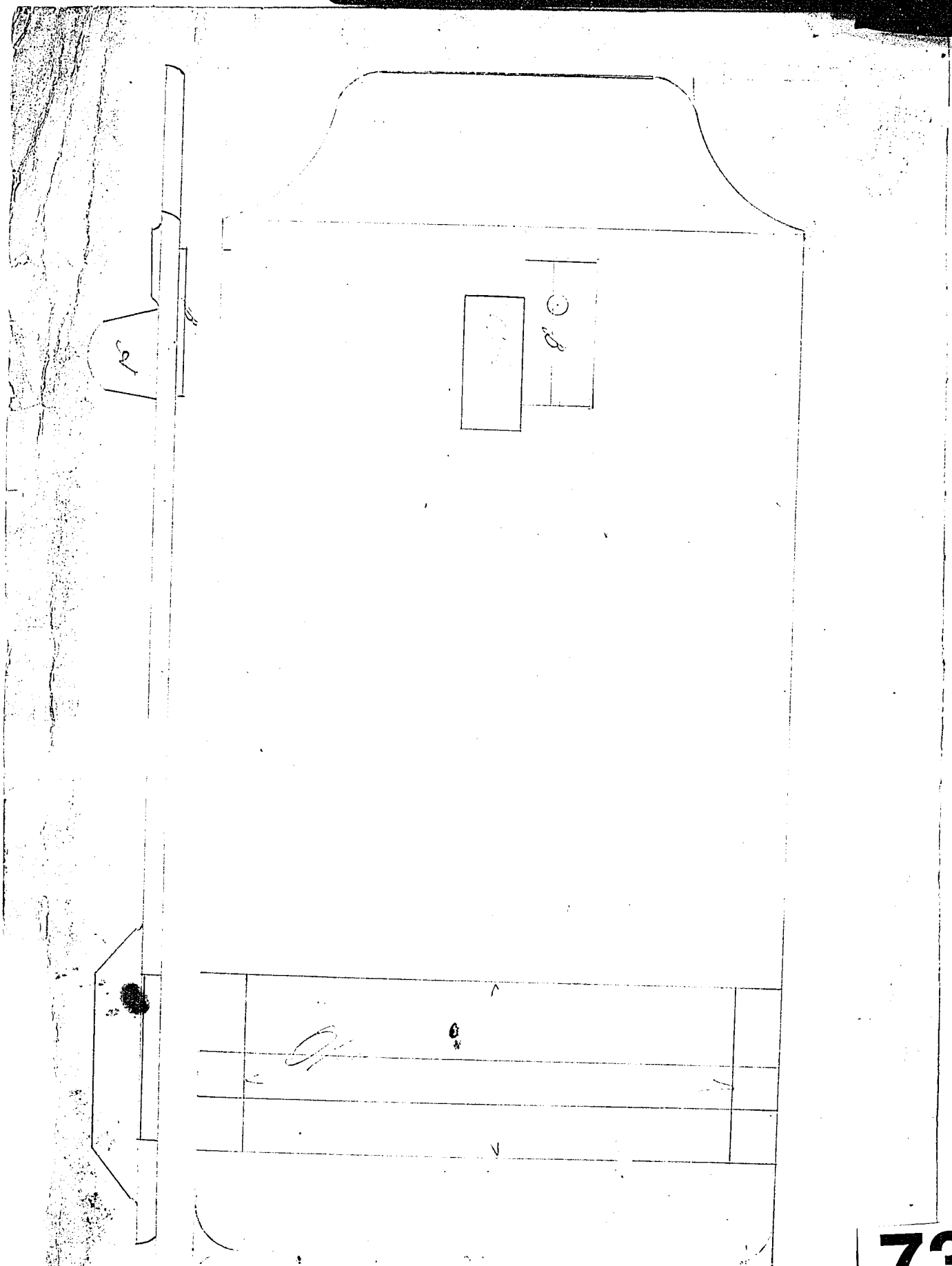
7



72

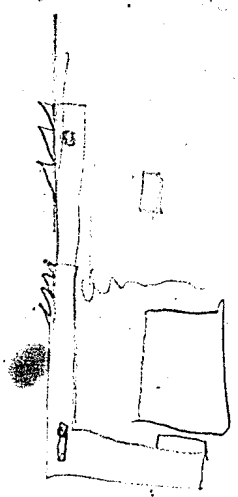
g
g
72
(2)

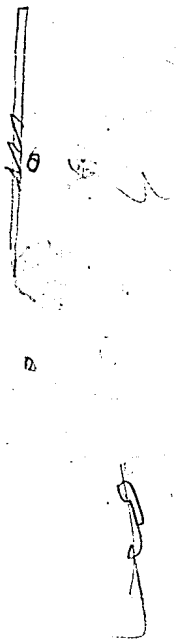

1/16 Thick Steel
Boston
Type wheels
Printing Lever

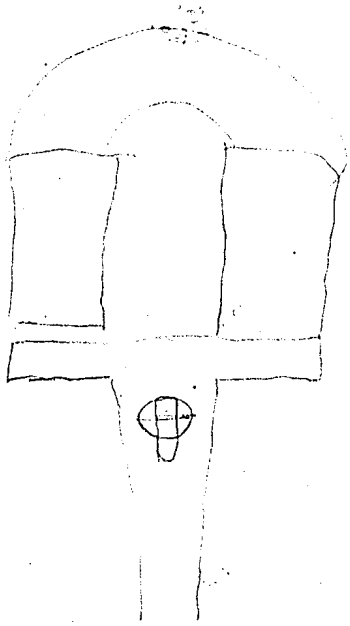


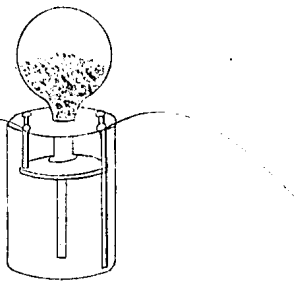
730

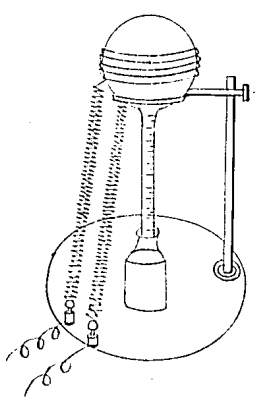
73

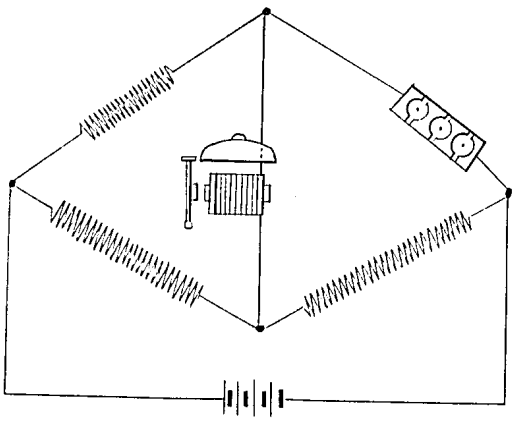


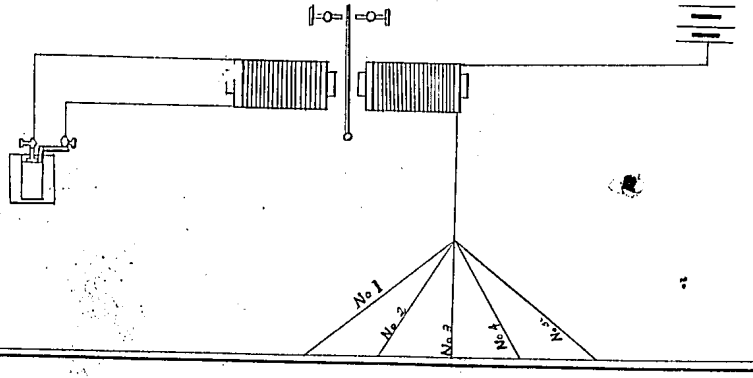






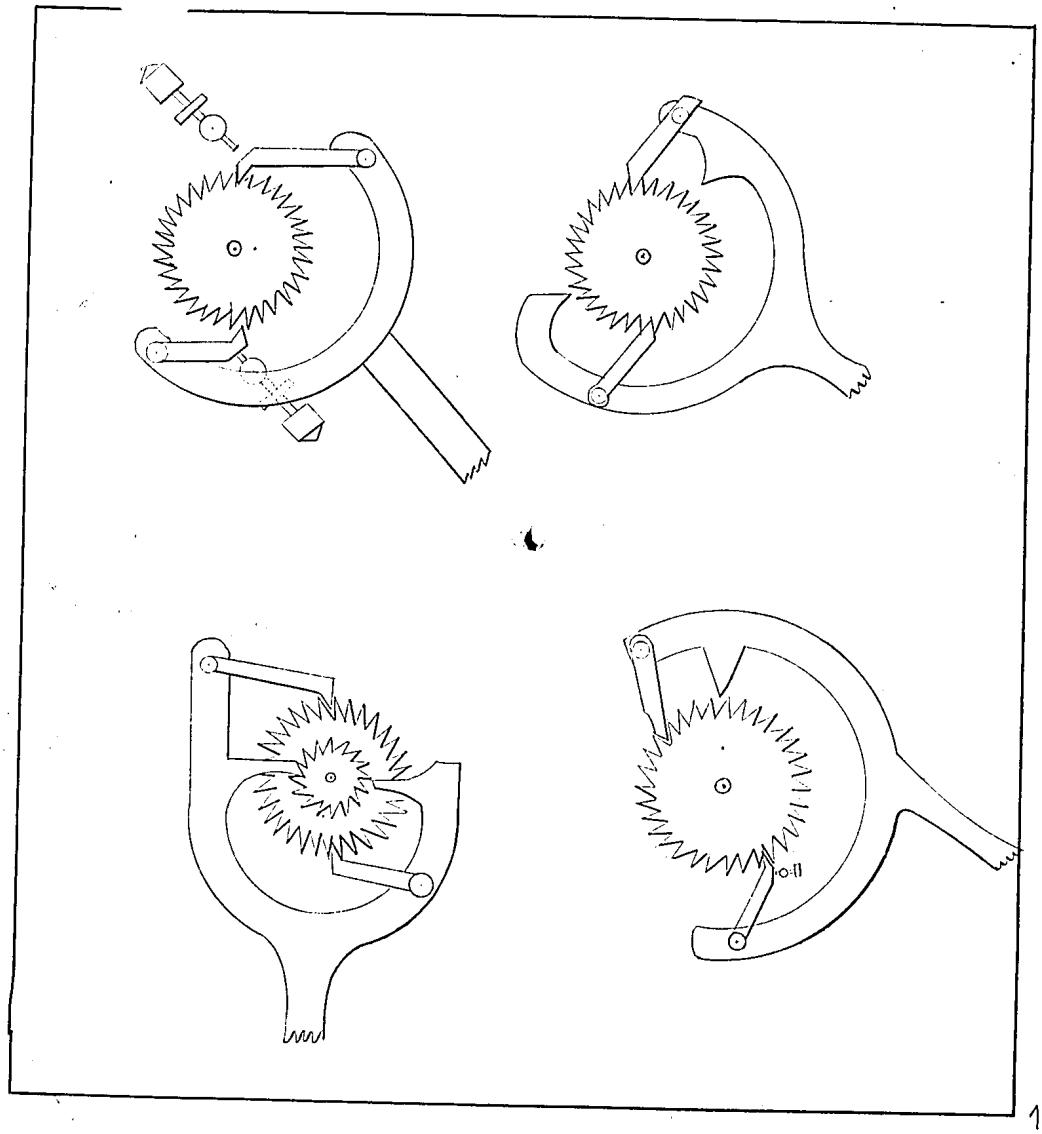




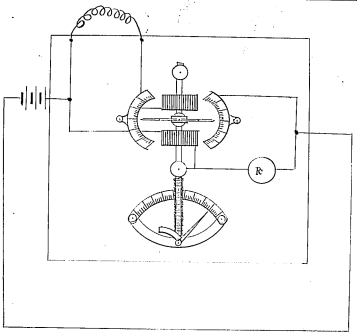


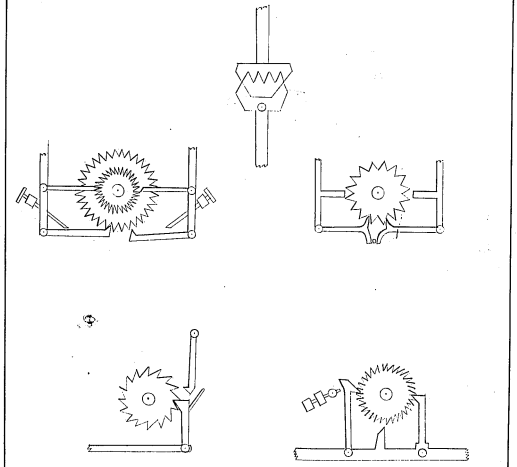
74

74



15





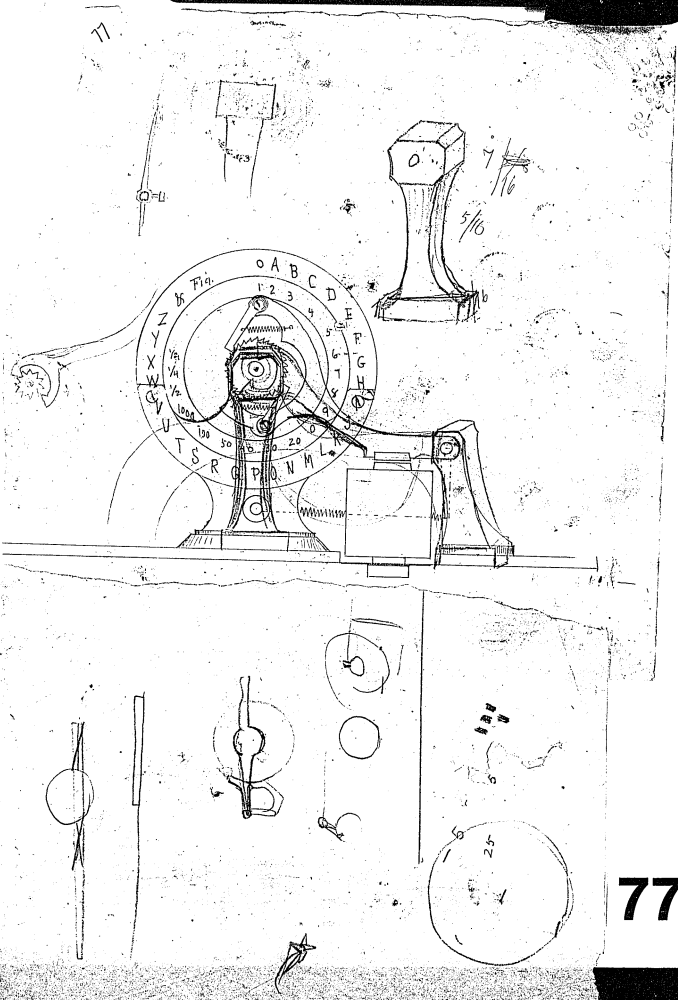
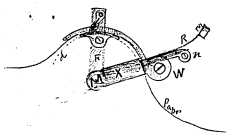

77
Fig.
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
1 2 3 4 5 6 7 8 9 10
1/8 1/4 1/2
100 50 20
5/16
7/16

Fig 13



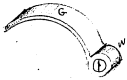


Fig 14

Fig 15

Fig 14

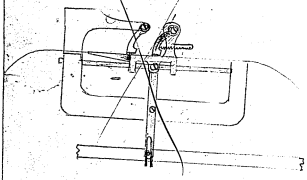
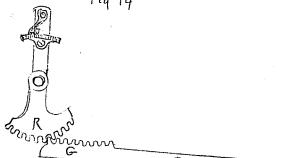


Fig 14



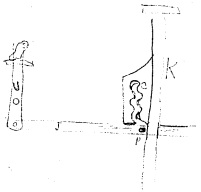


Fig 15

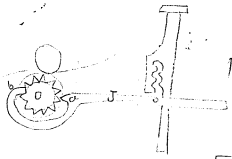


Fig 16

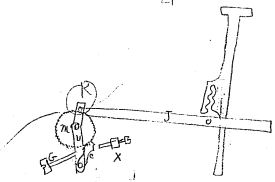


Fig 17

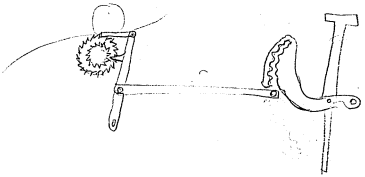


Fig 18

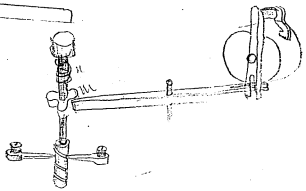
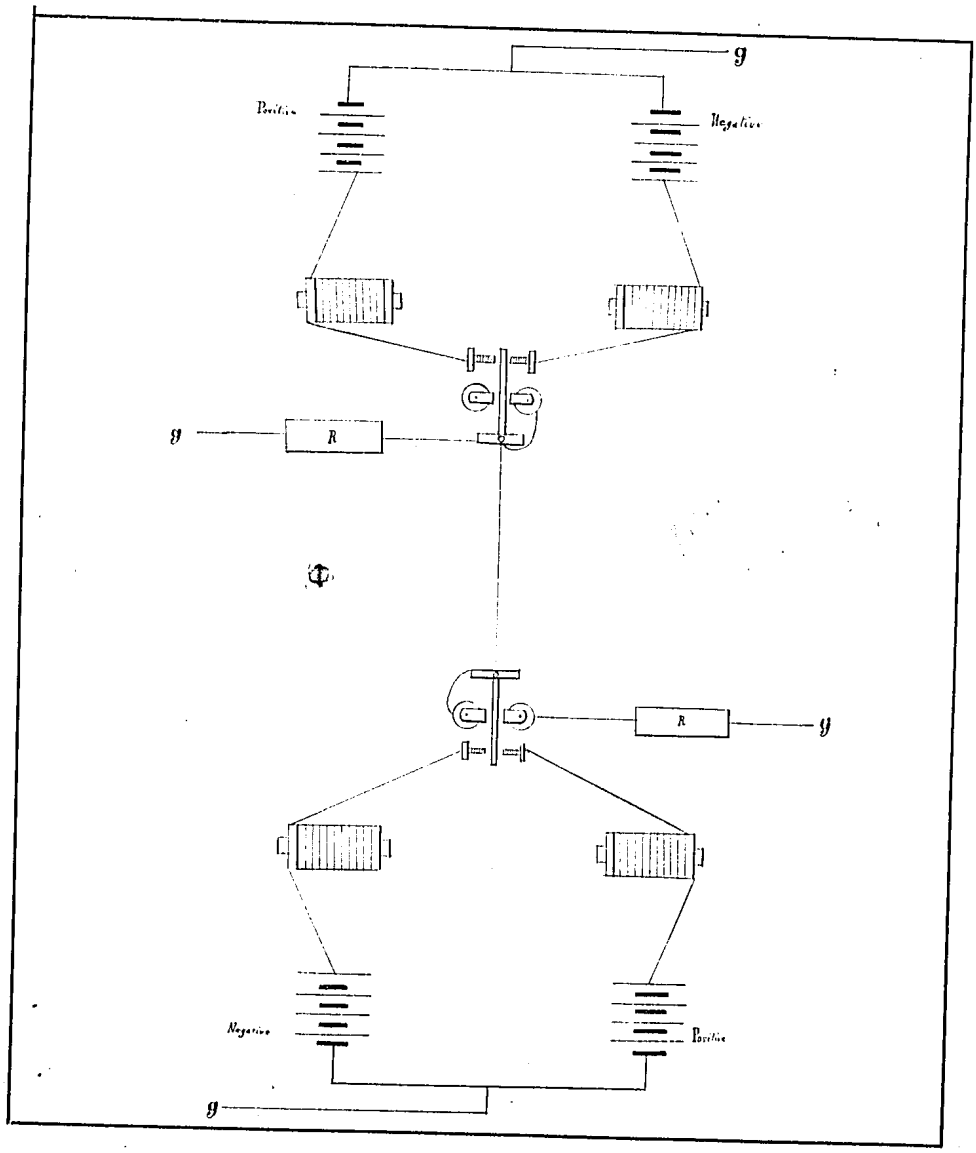
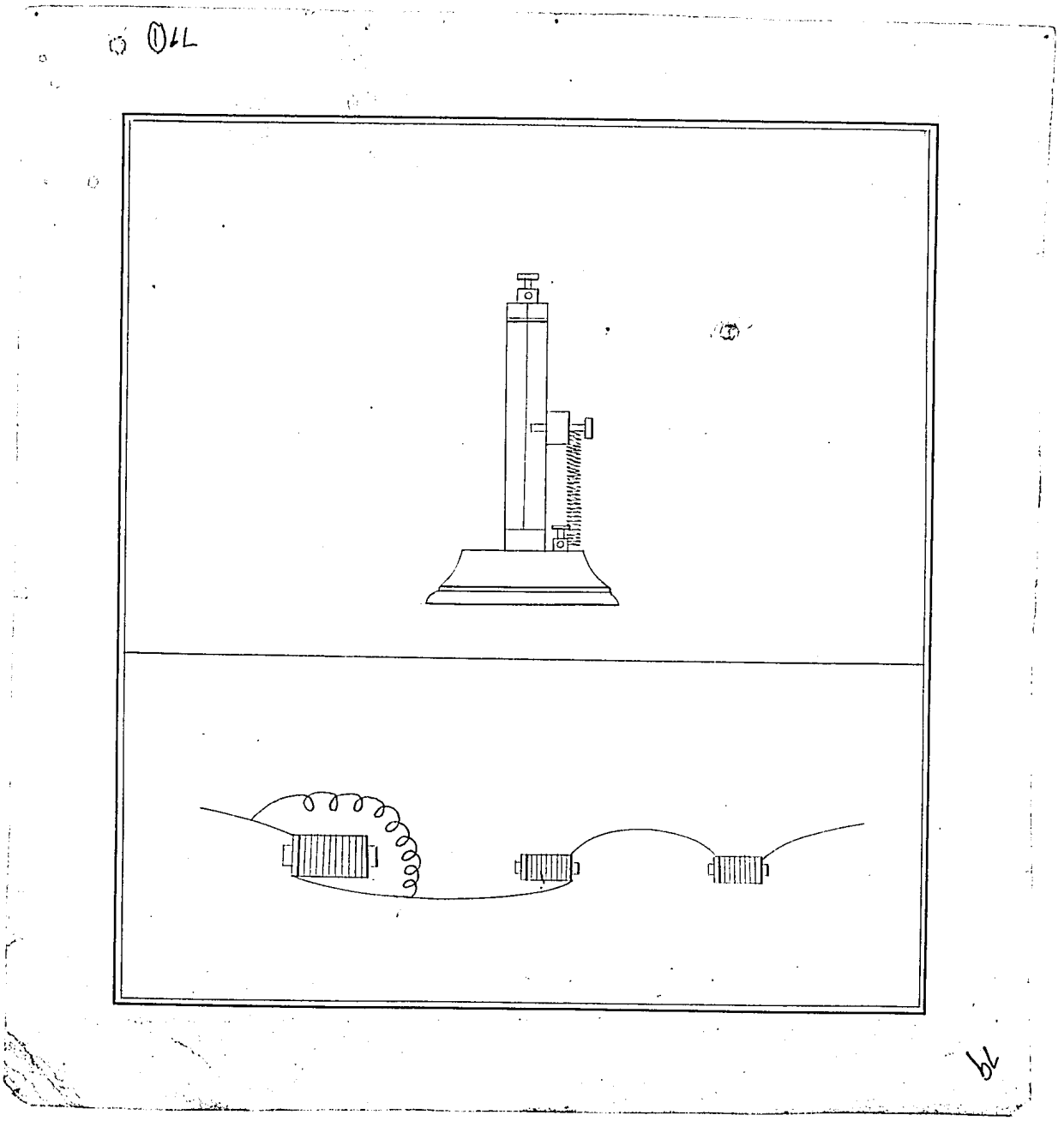


Fig 19

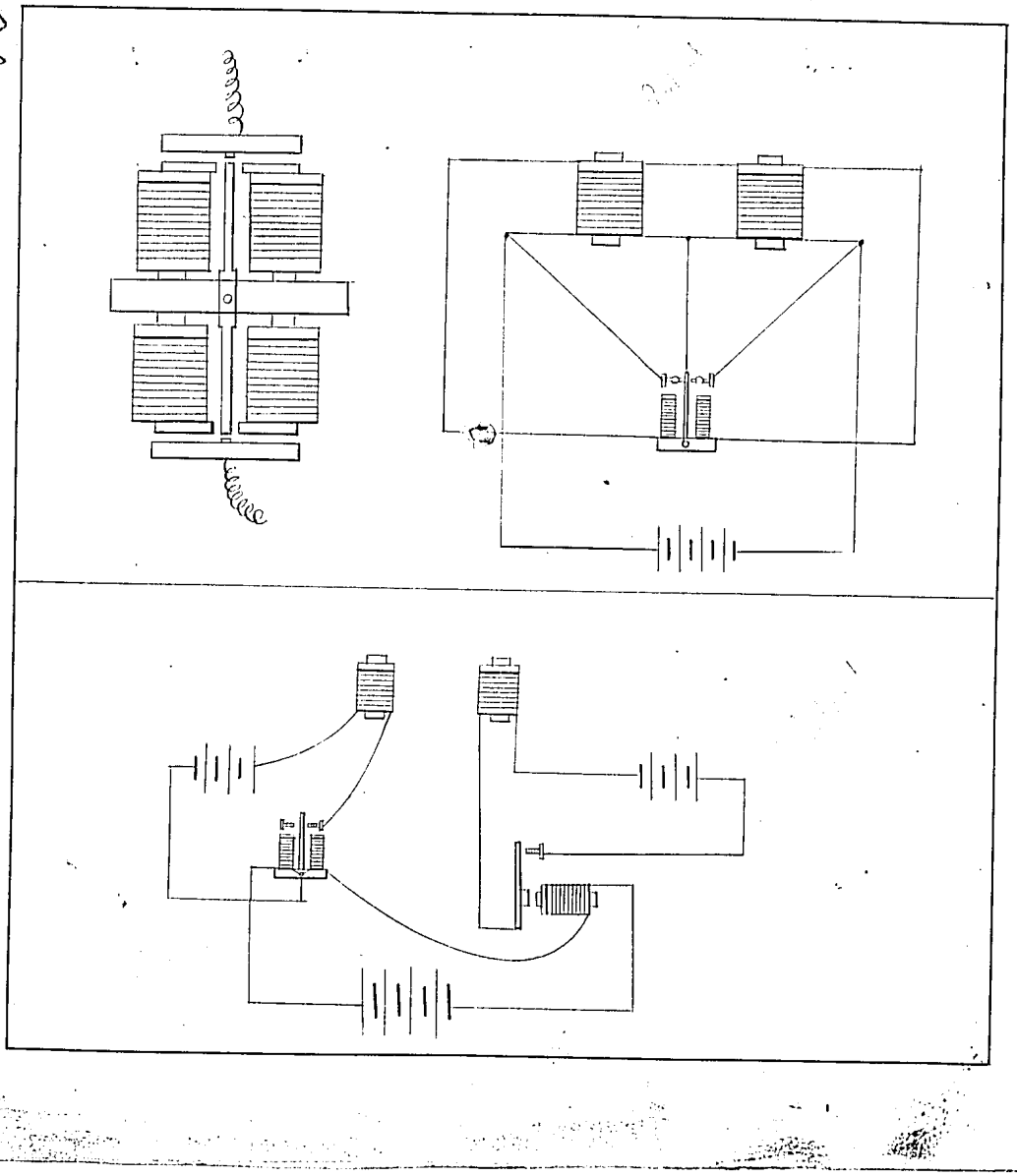
78

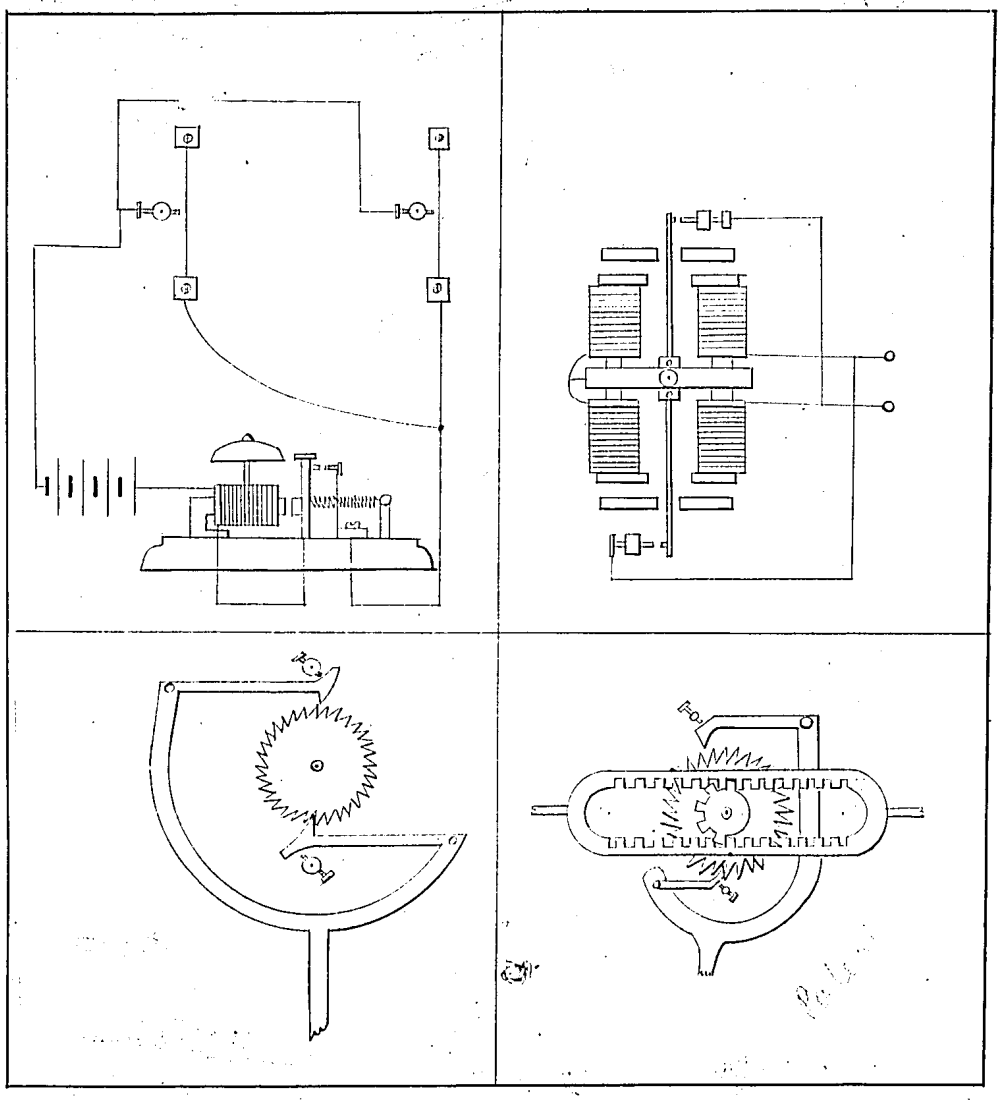


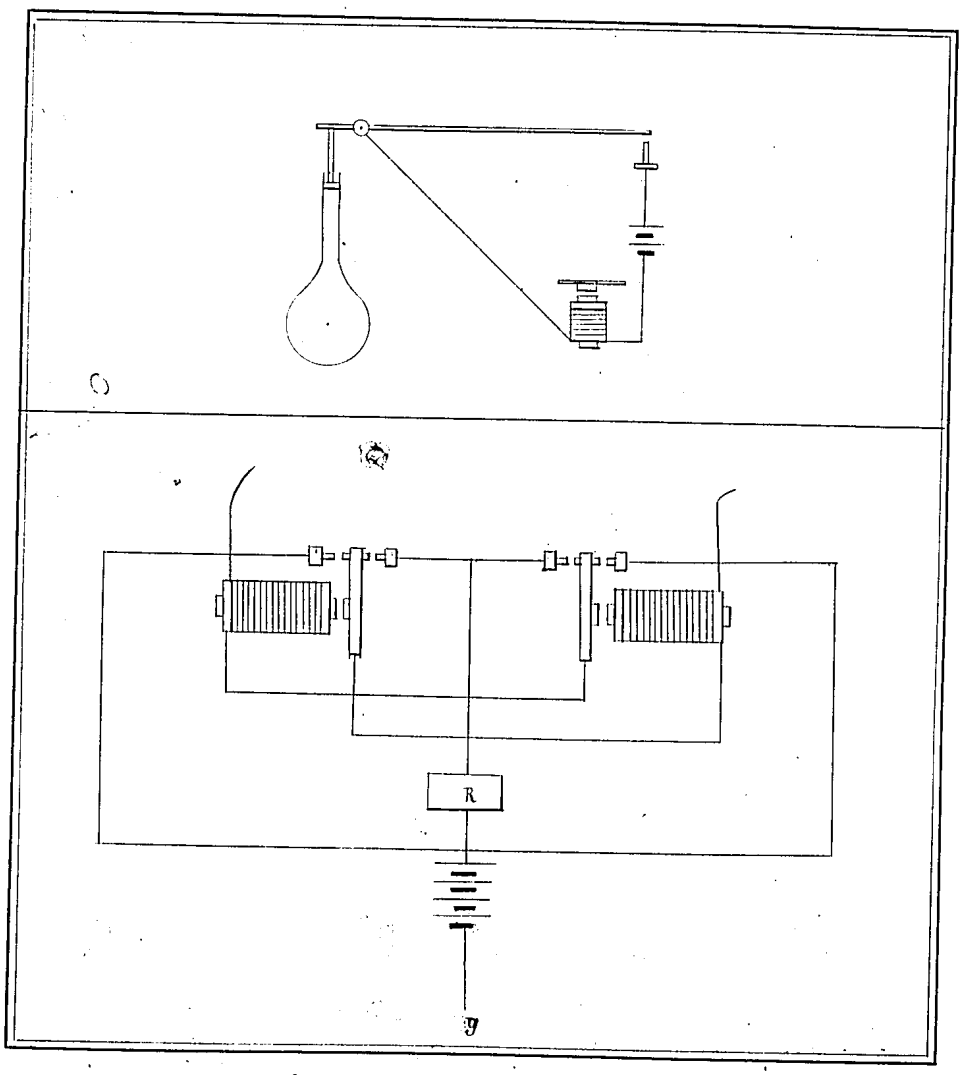
79



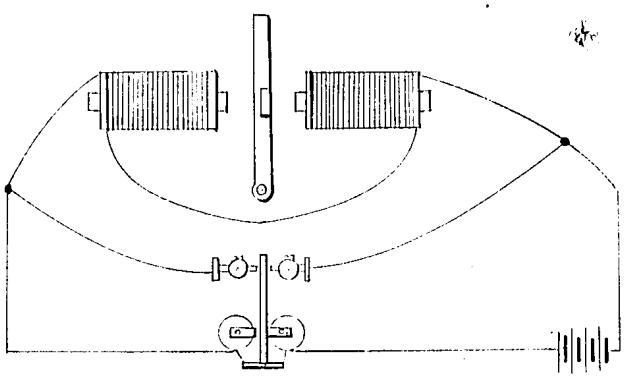
(2)
08

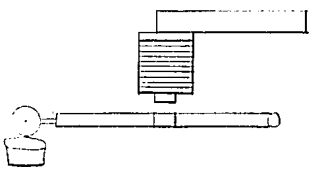


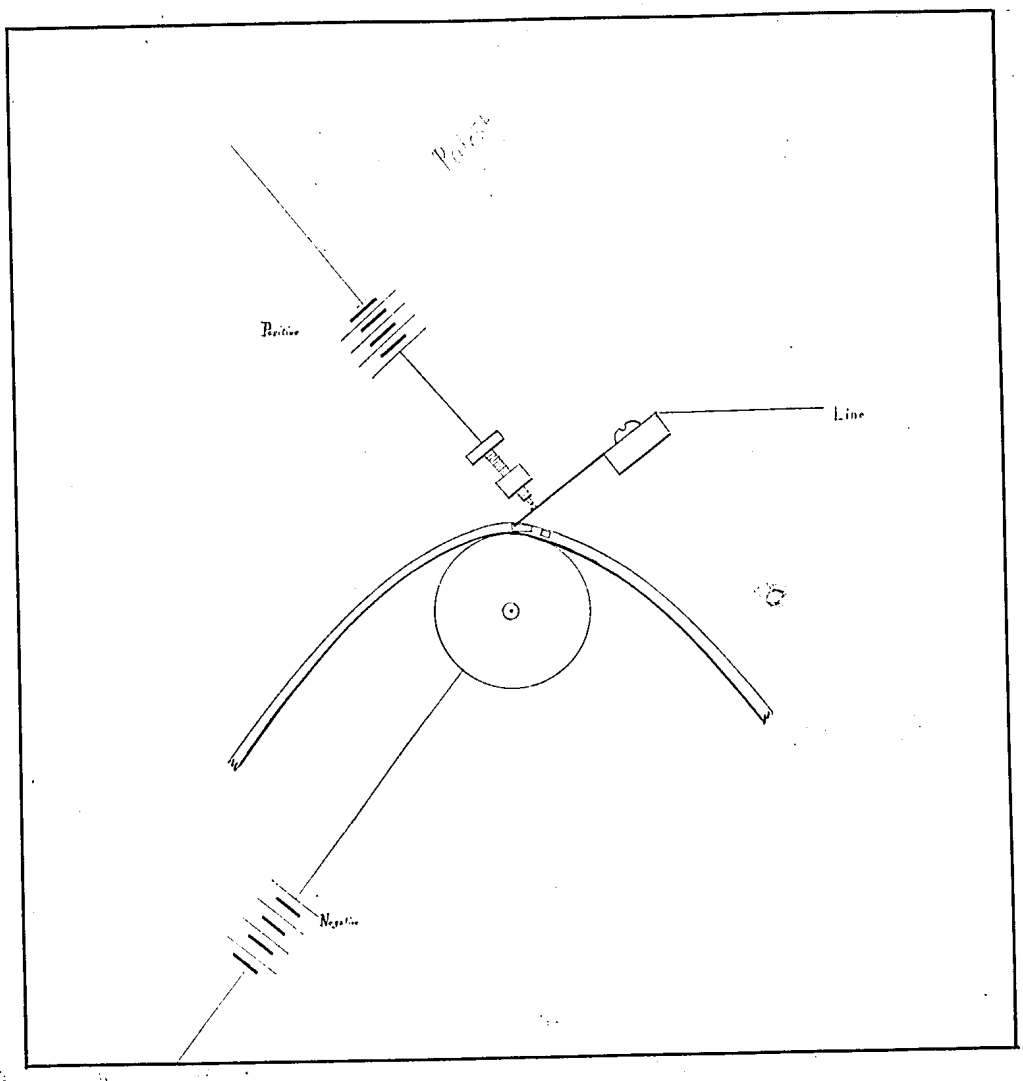



R

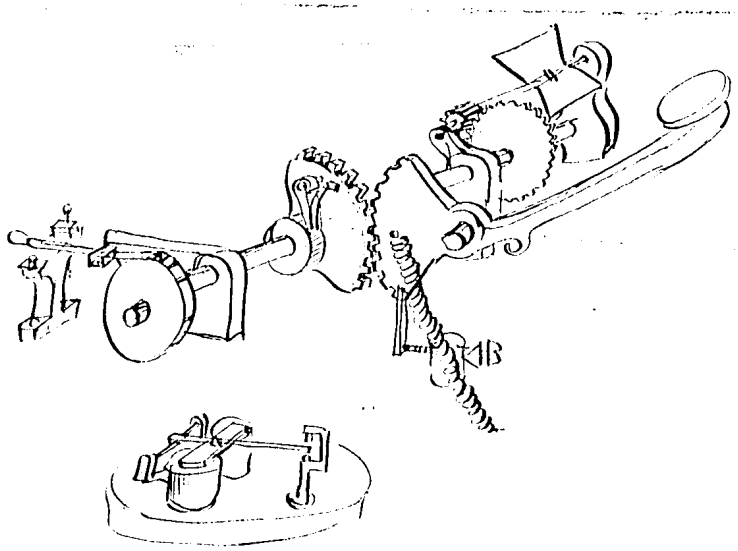
Q18







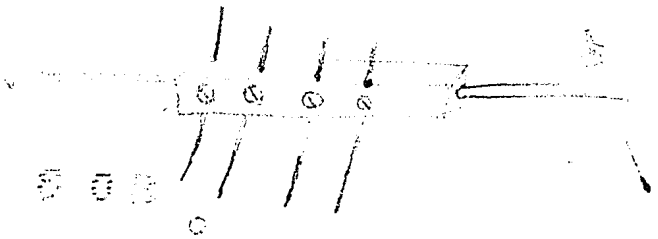
78

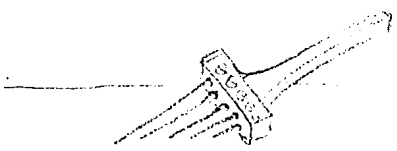


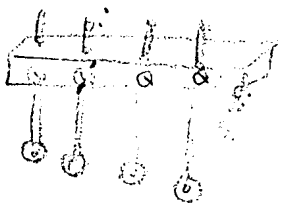
82

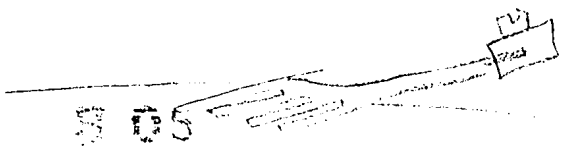
Boston Armed

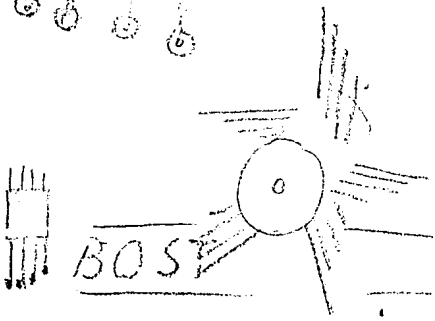
Machine

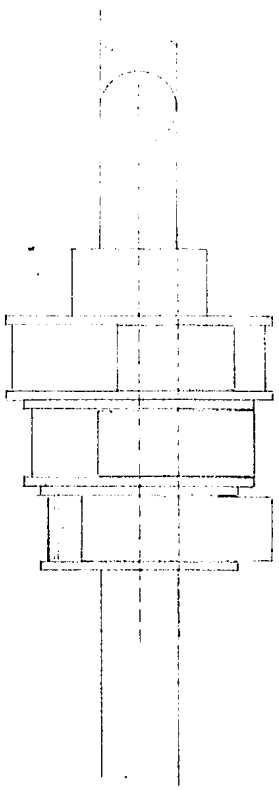


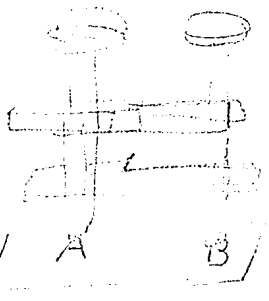








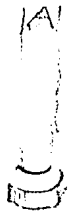




BOSTON

BOSTON

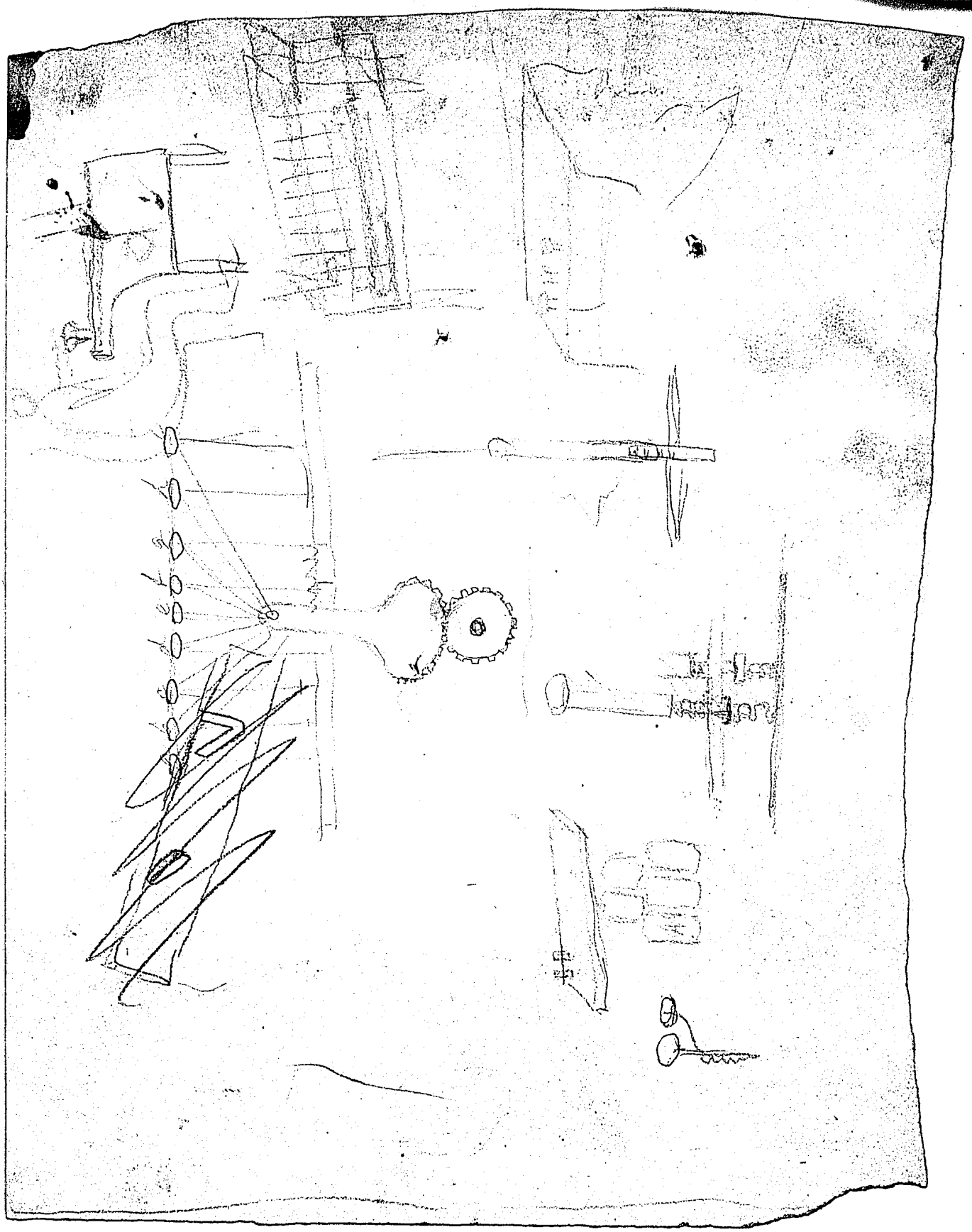
BOSTON.

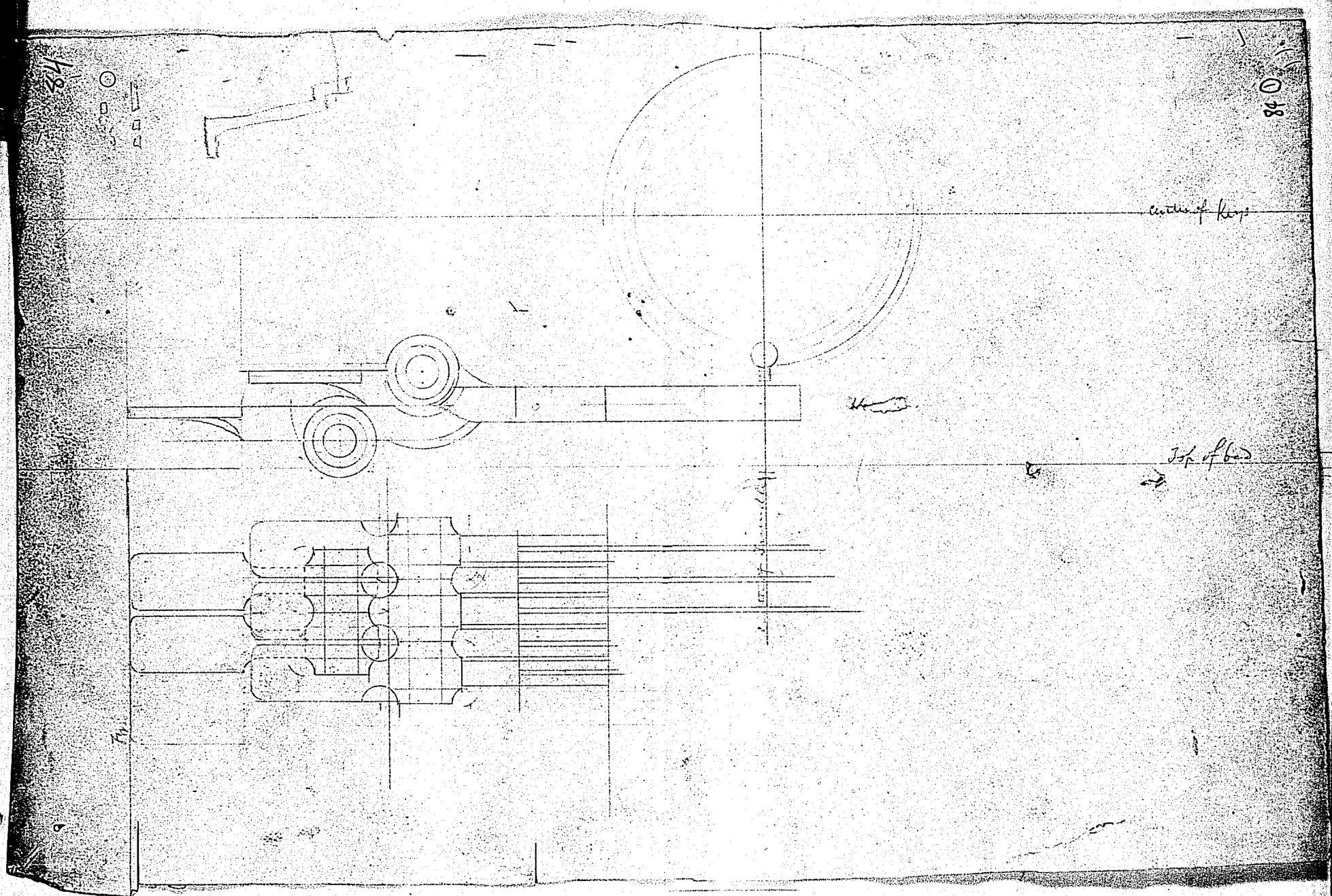


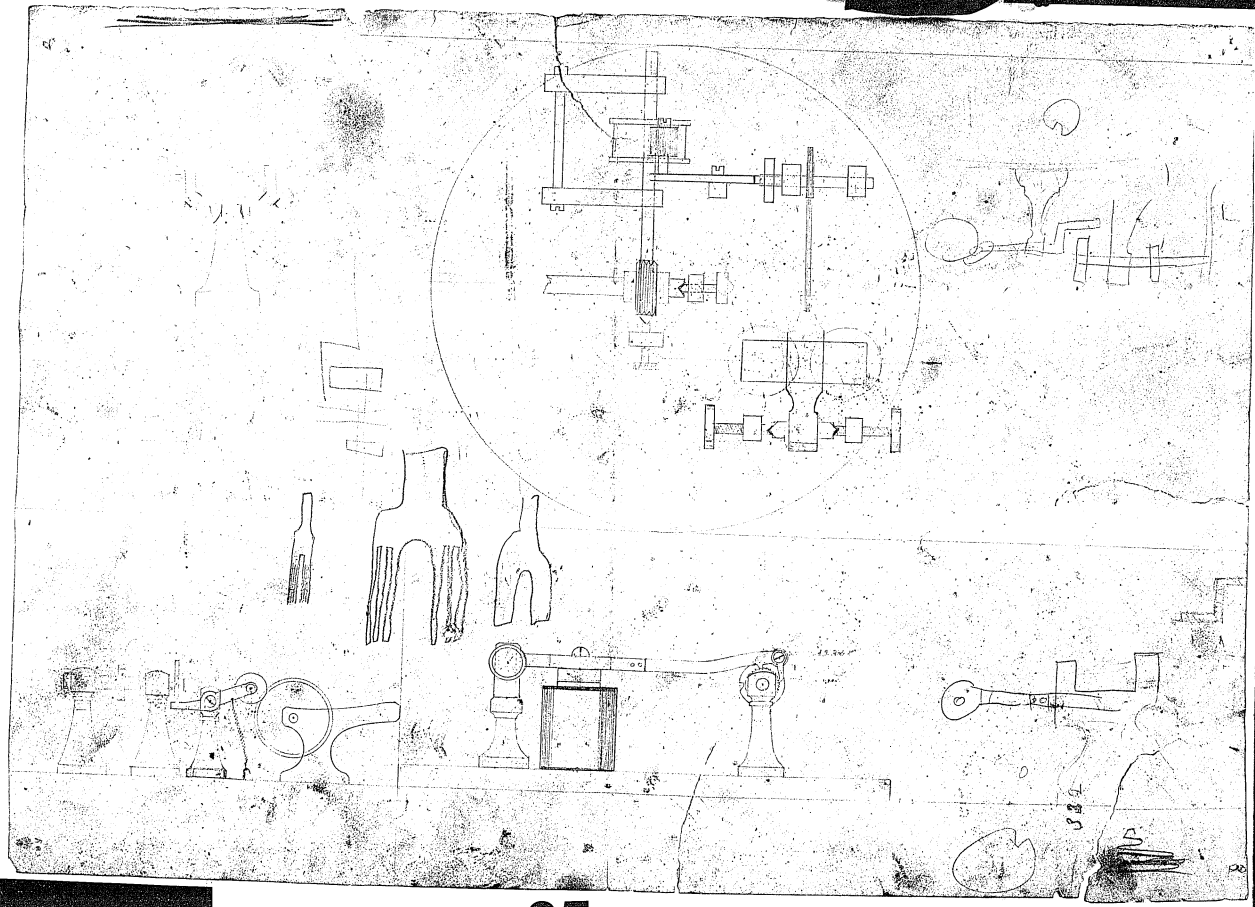
830

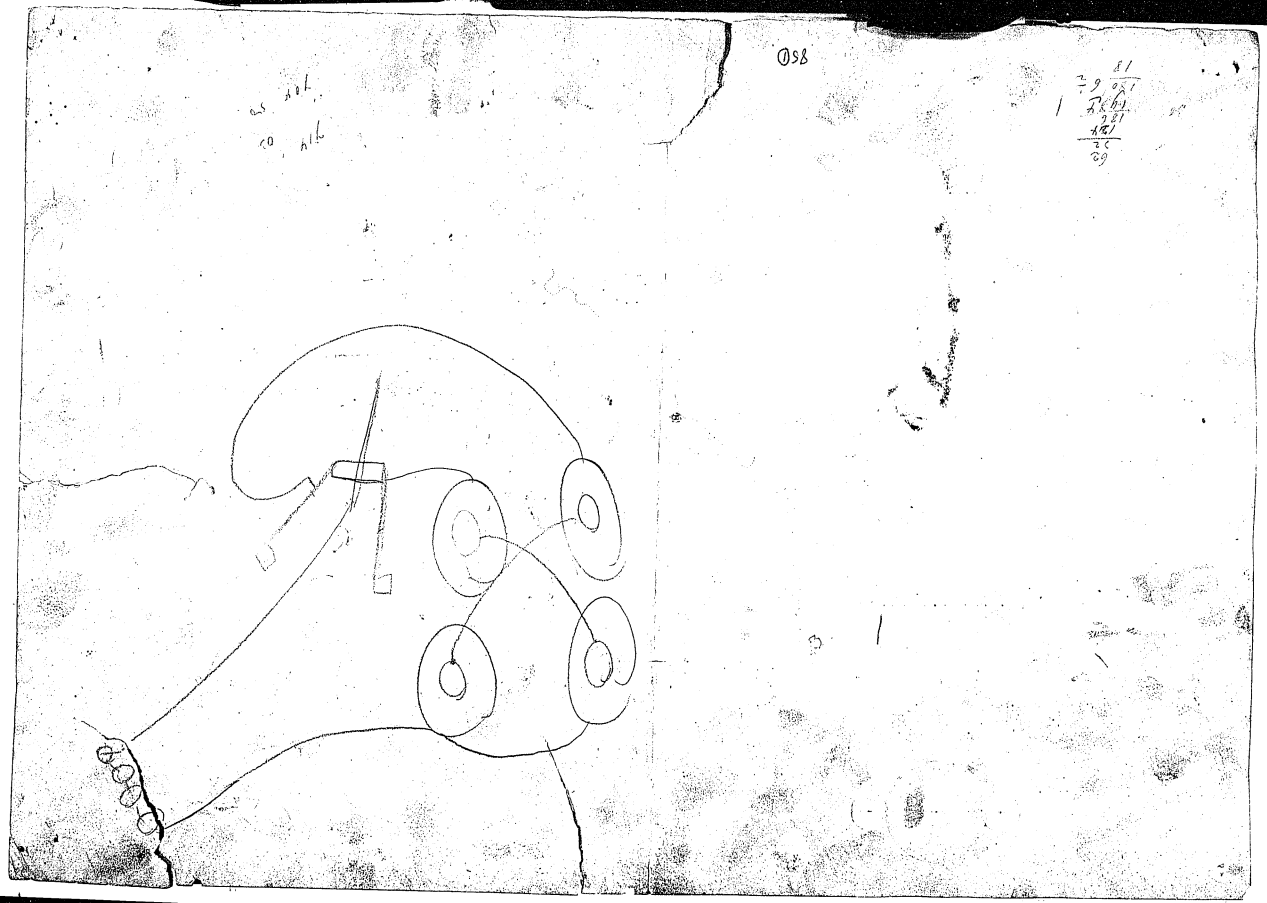
830

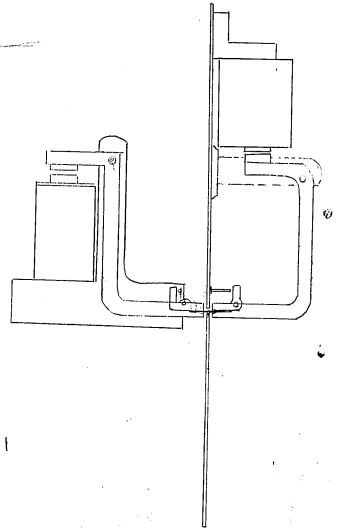
83

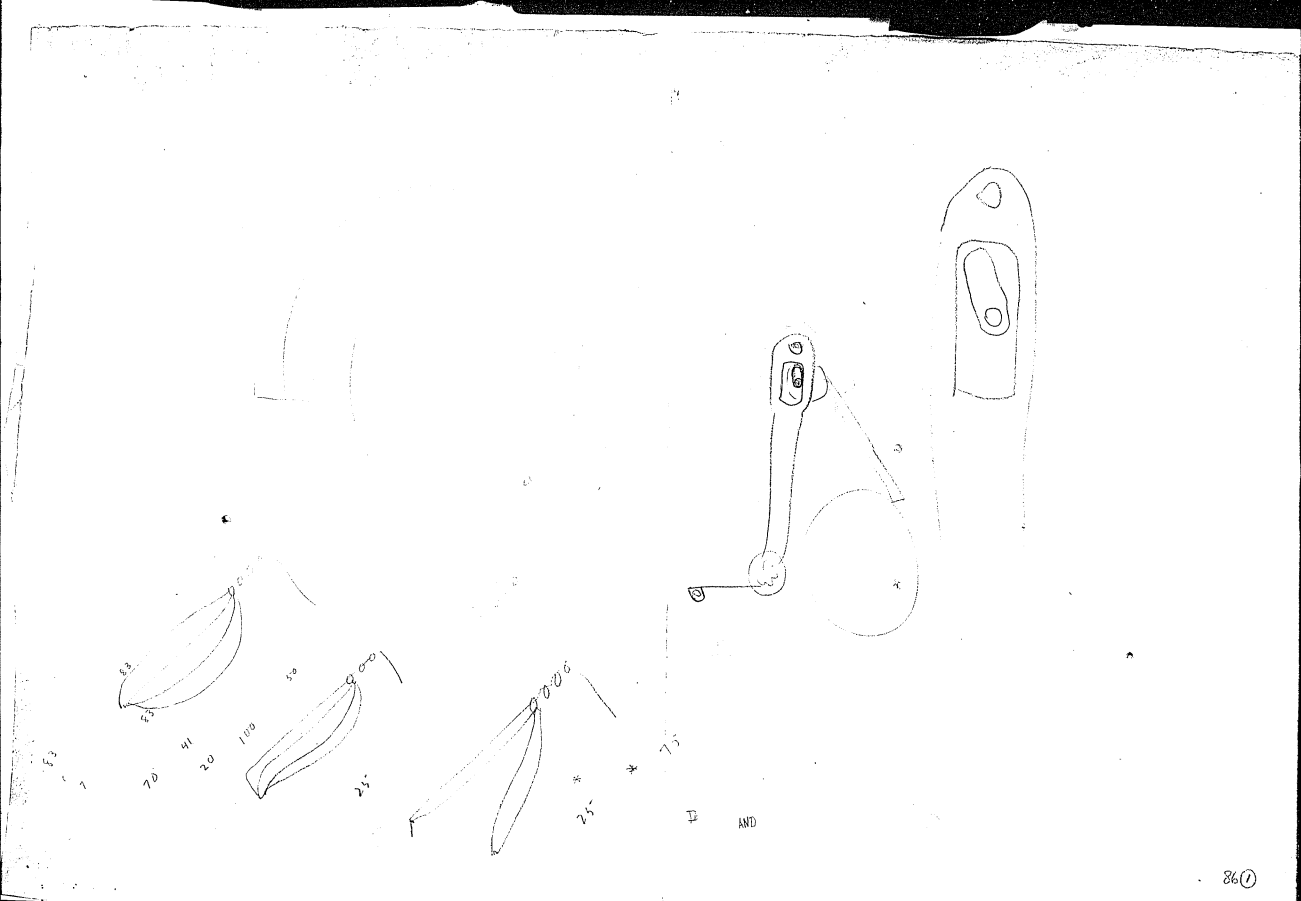



Centre of Keys

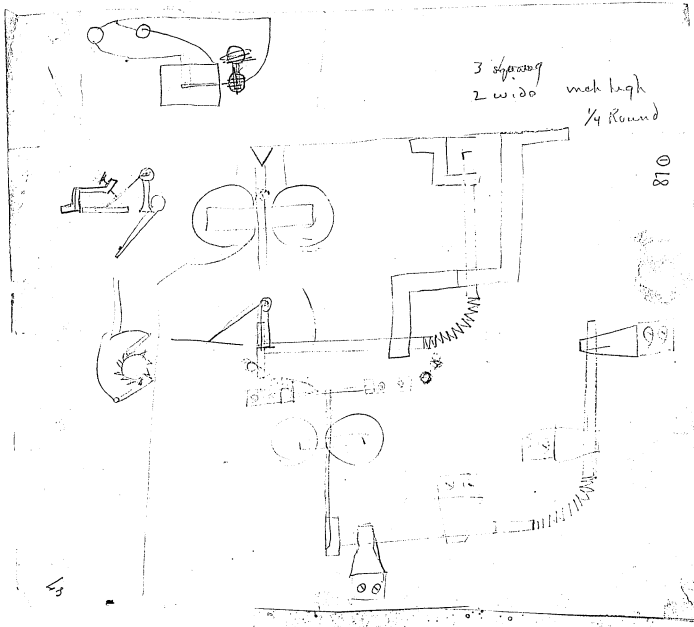


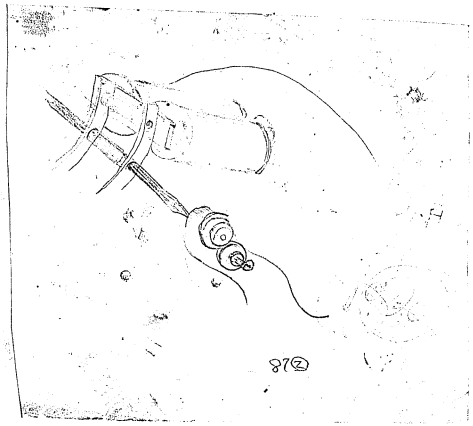


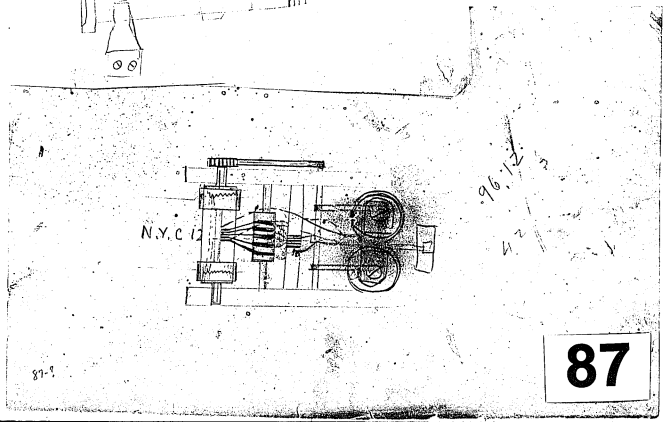




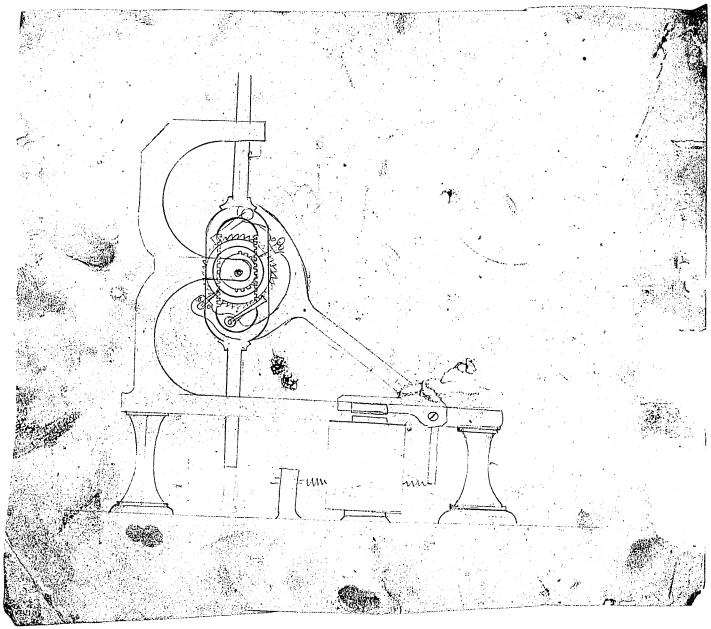
86(1)

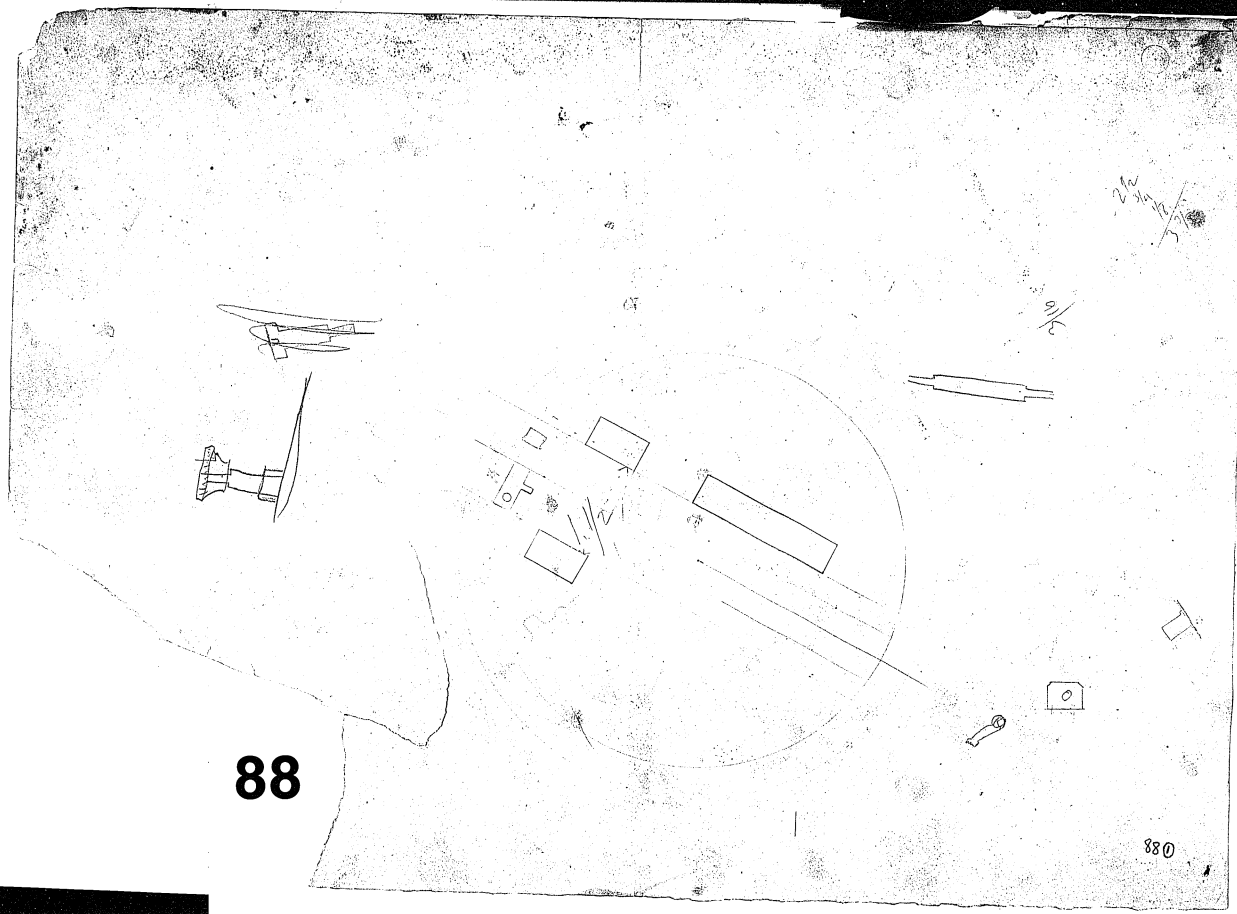




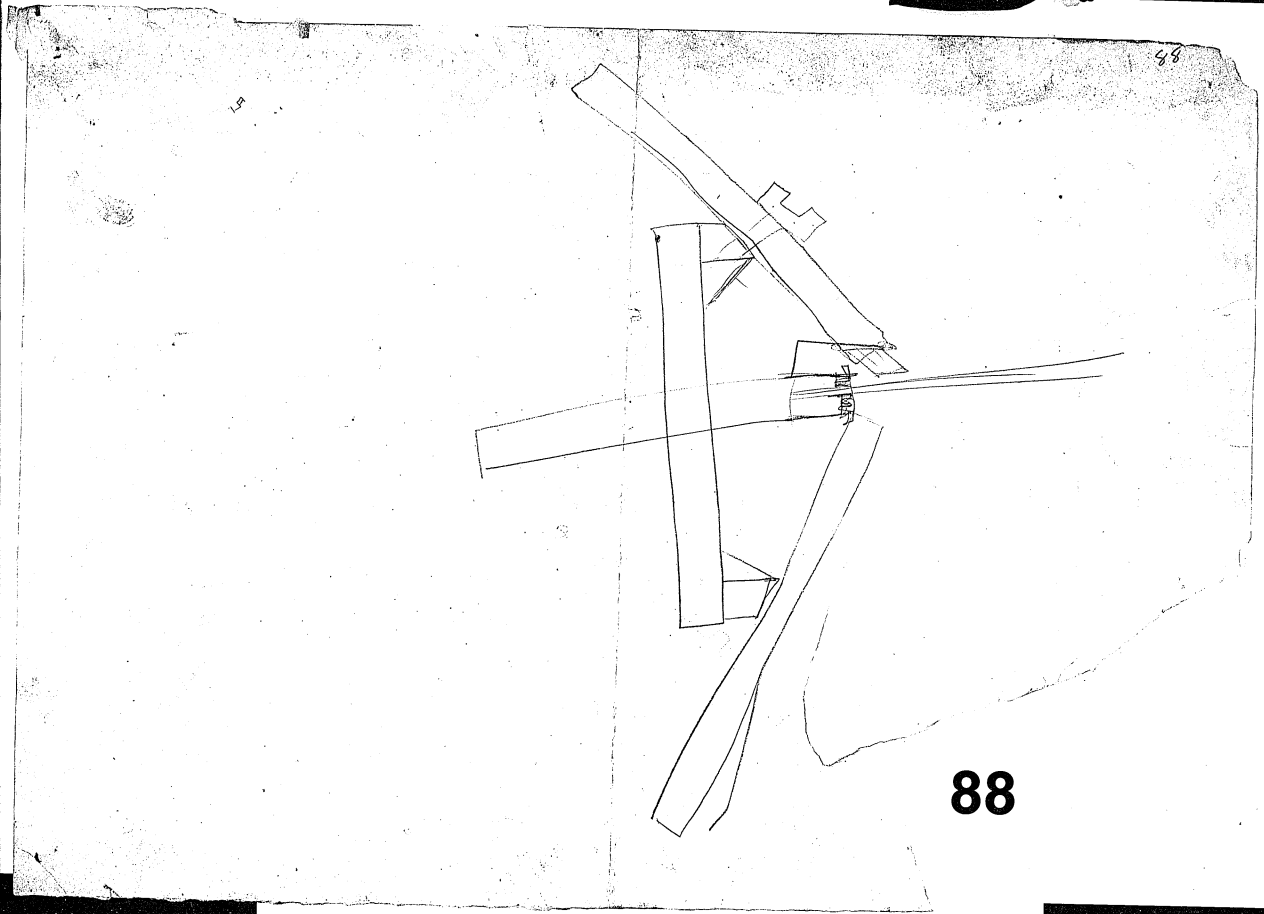


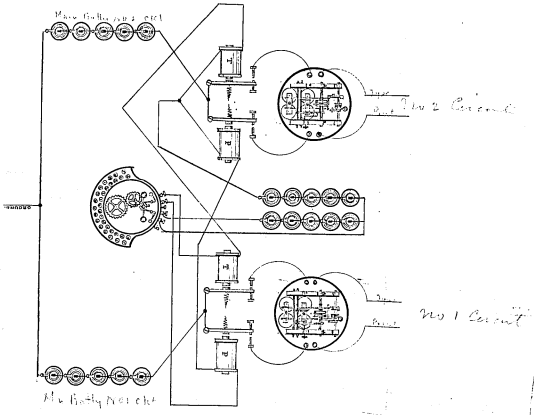
87

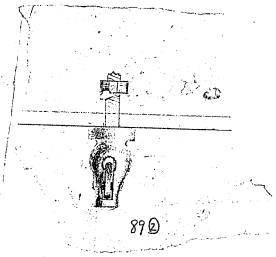


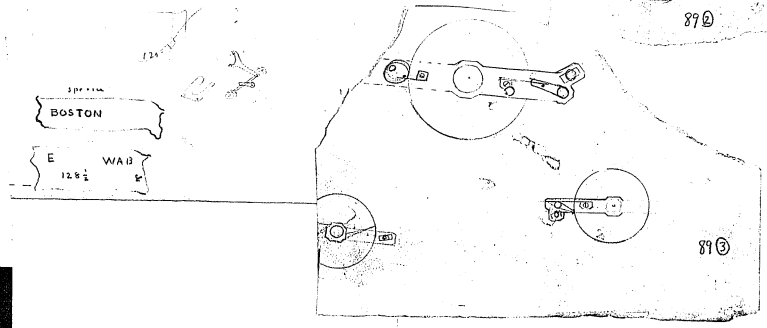


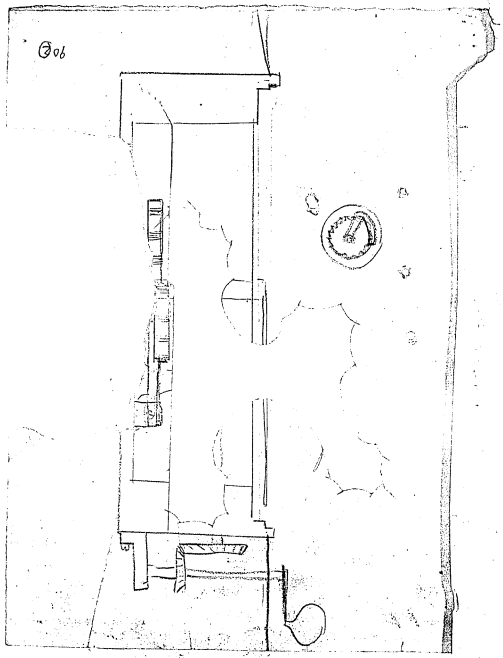
88



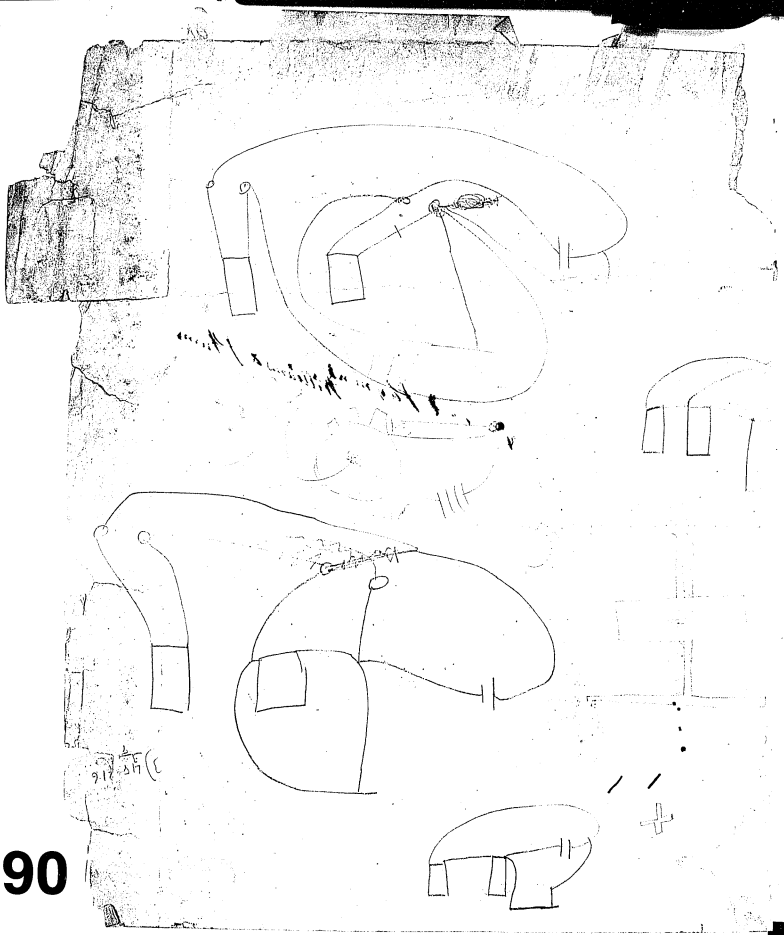


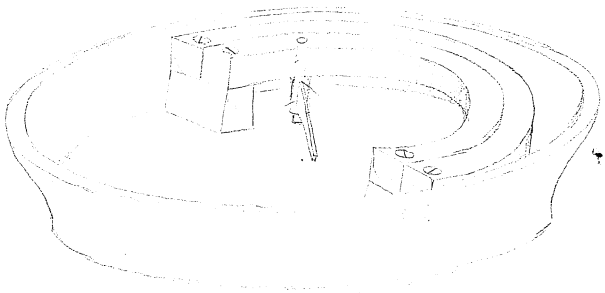

89②

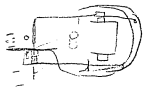

BOSTON
E
WAB
89③

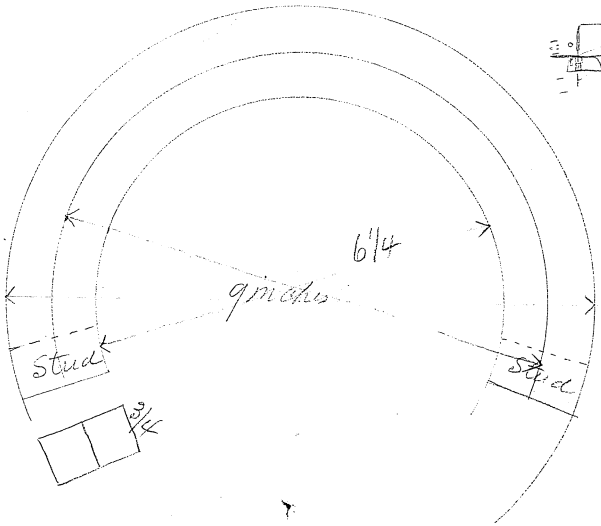


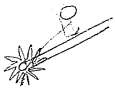
90

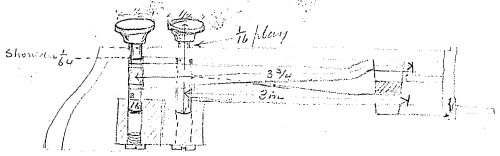




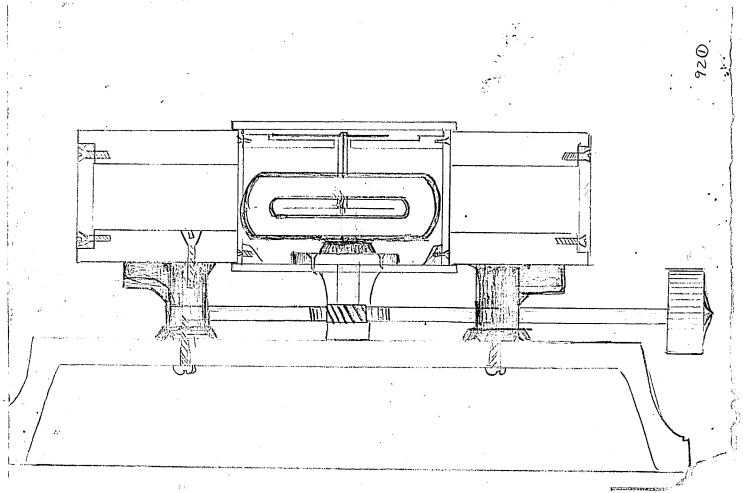


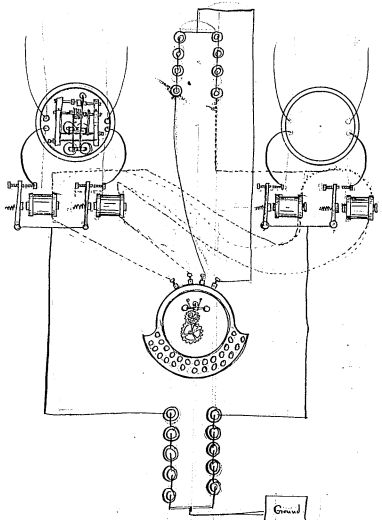

6 1/4
9 inches
Stud
Stud
3/4



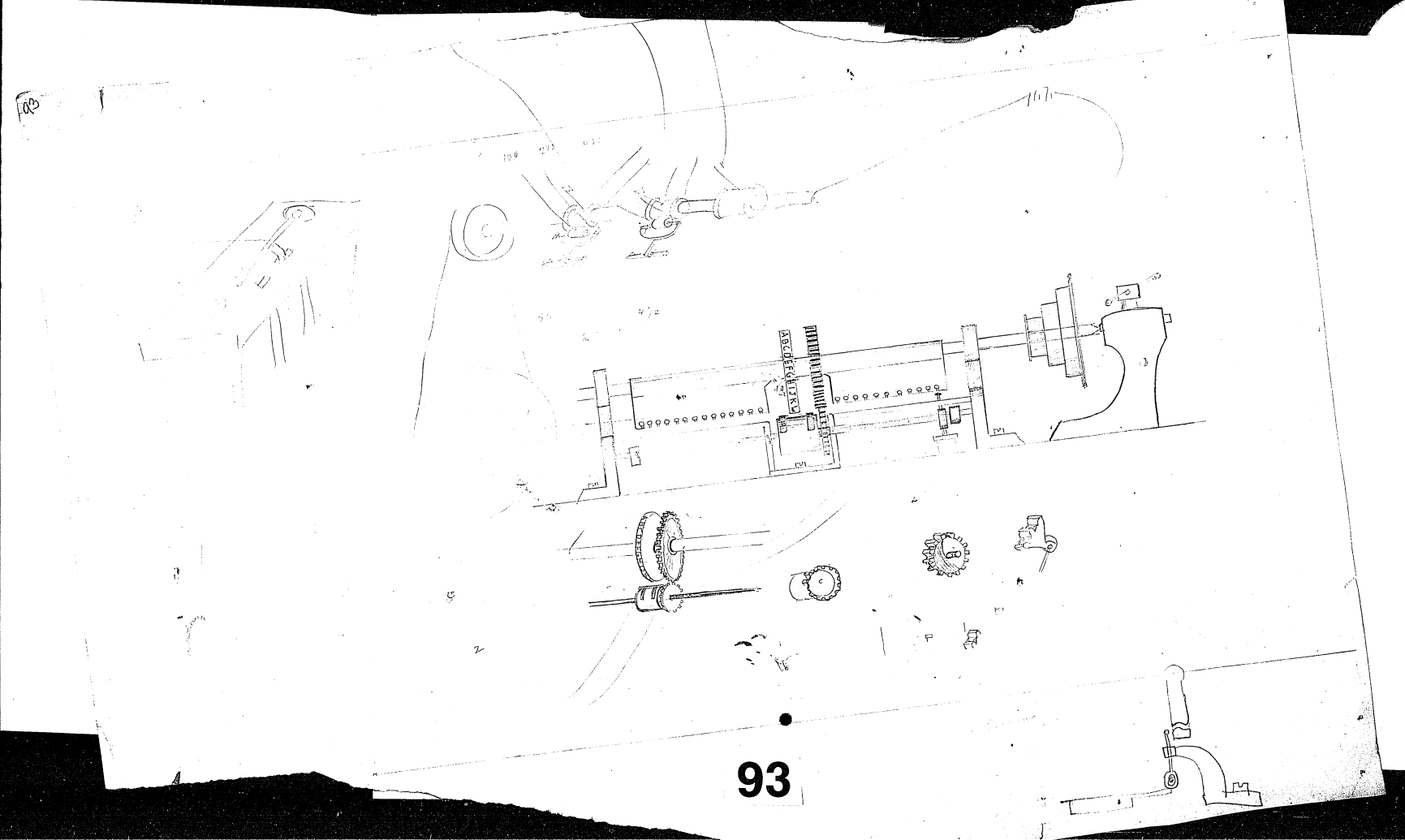


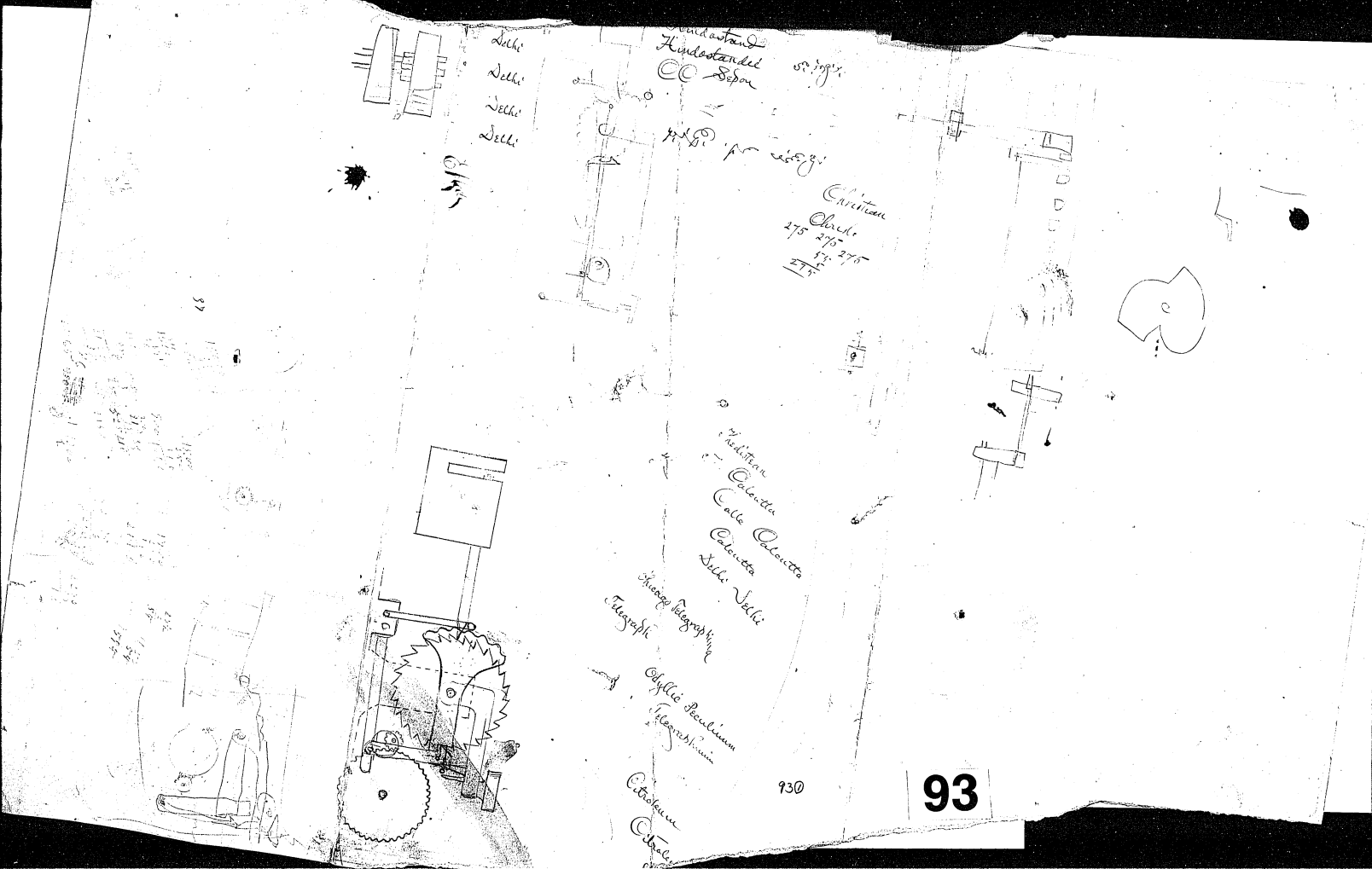
Make joint with compression fitting

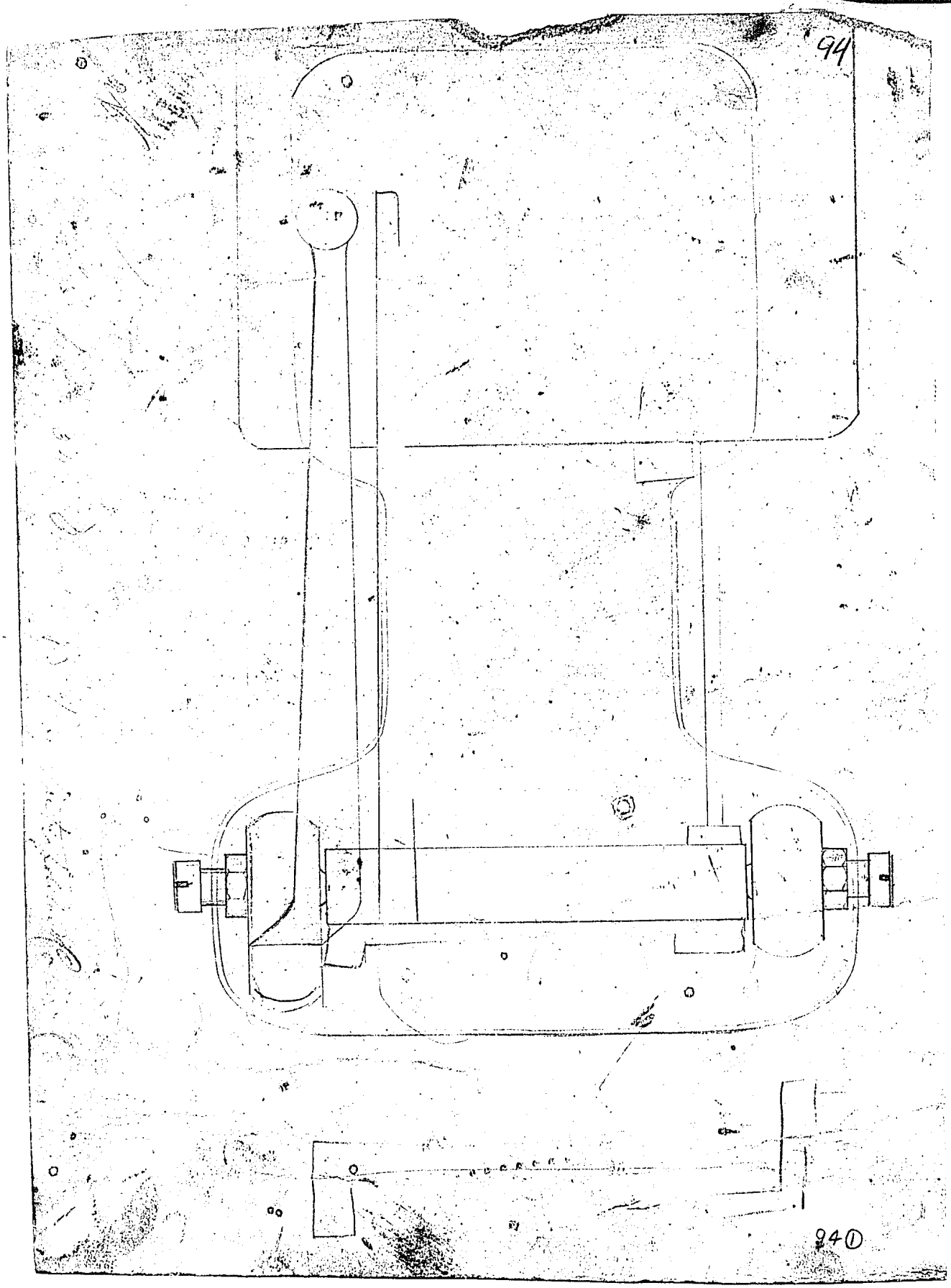


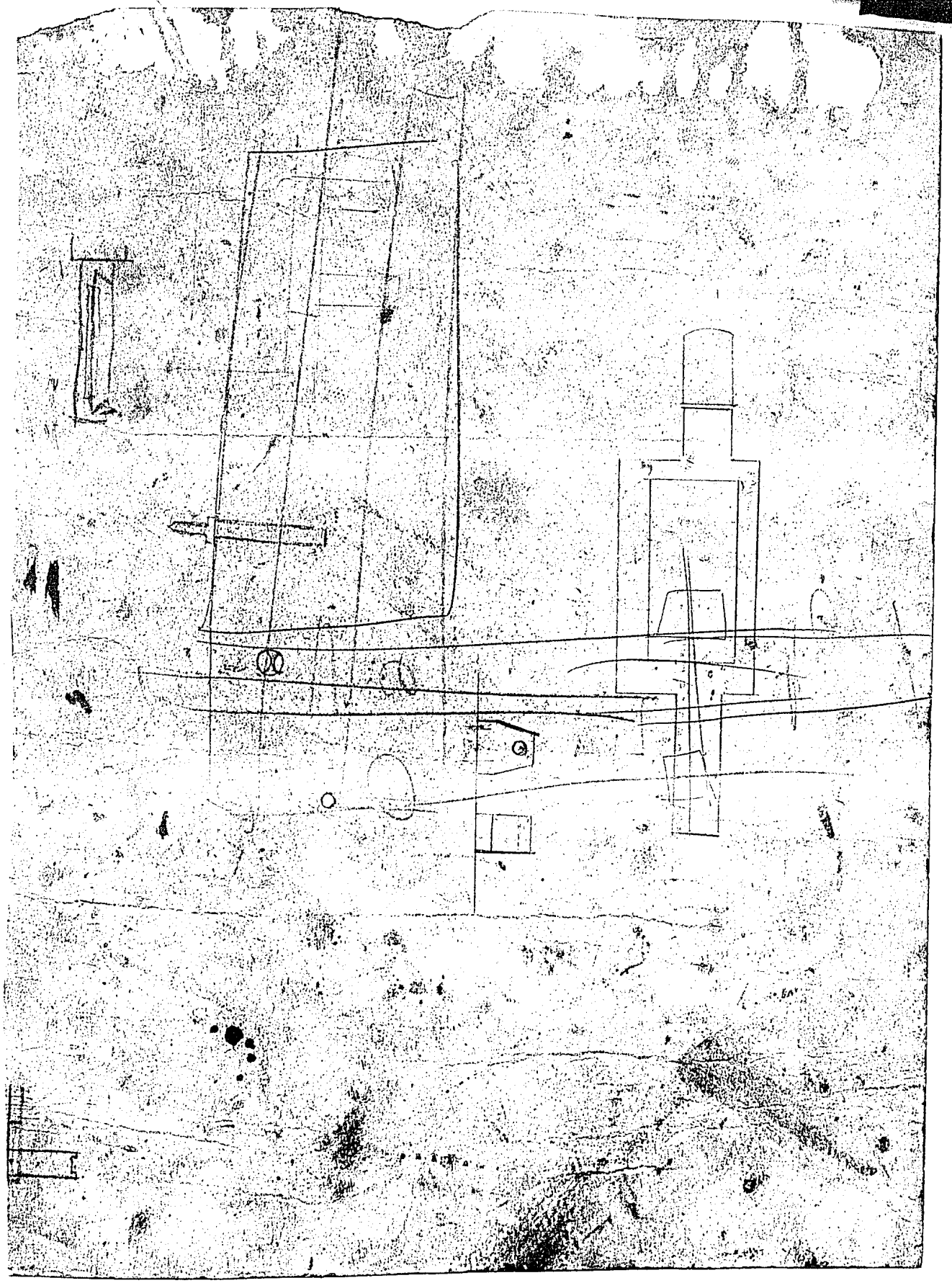


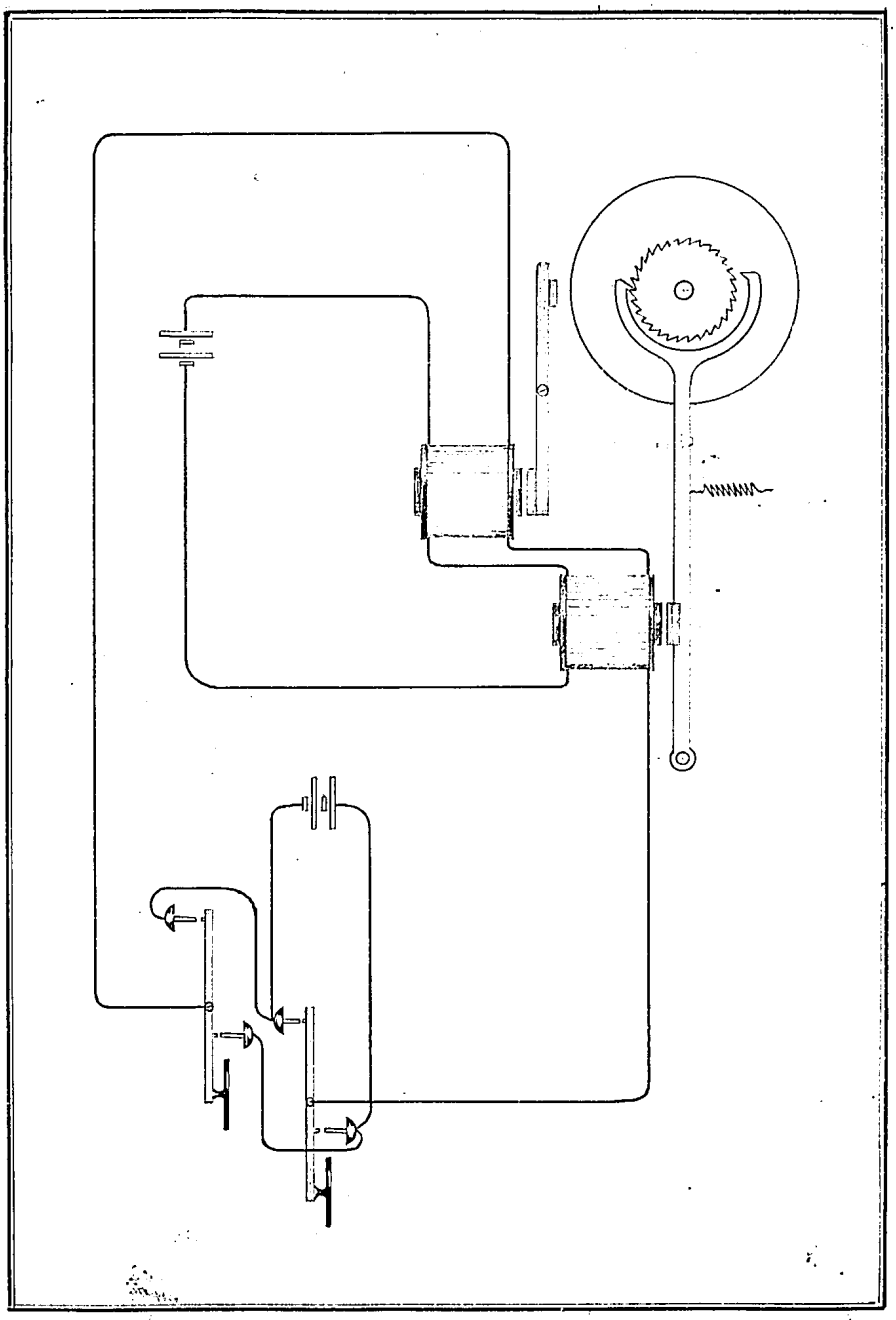
92

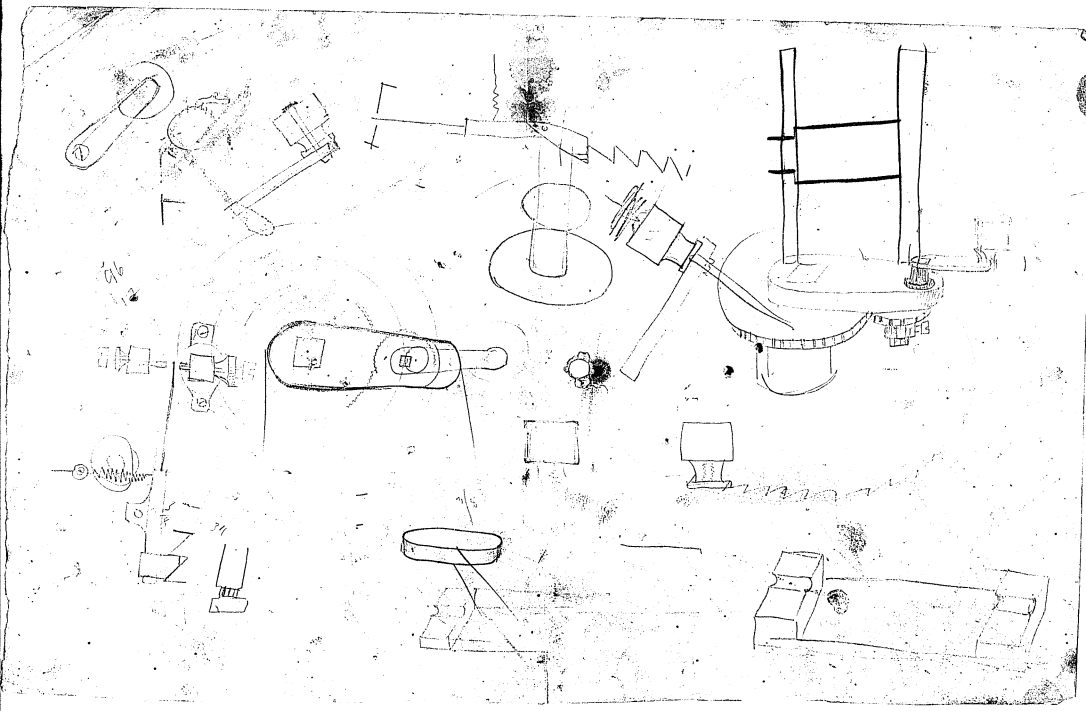


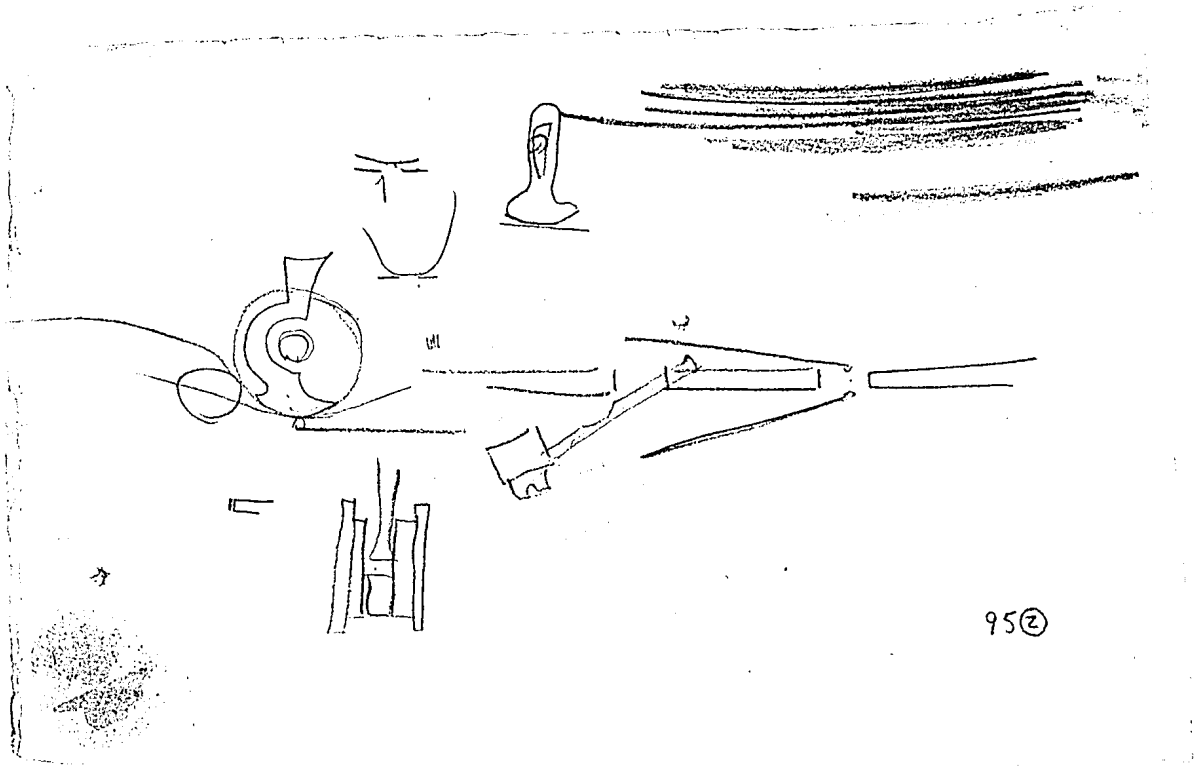

Delhi
Delhi
Delhi
Delhi
Hindustandd
CC Sepoy
Calcutta
Calcutta
Calcutta
Delhi Delhi
Chicago Telegraphy
Telegraph
Oyster Peculium
Telegraphium
930
93


94
94D

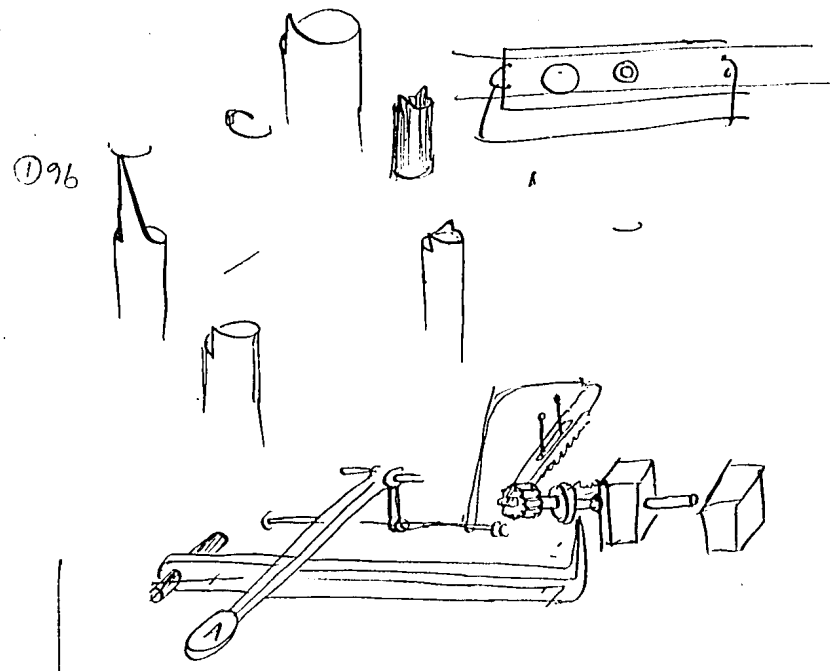


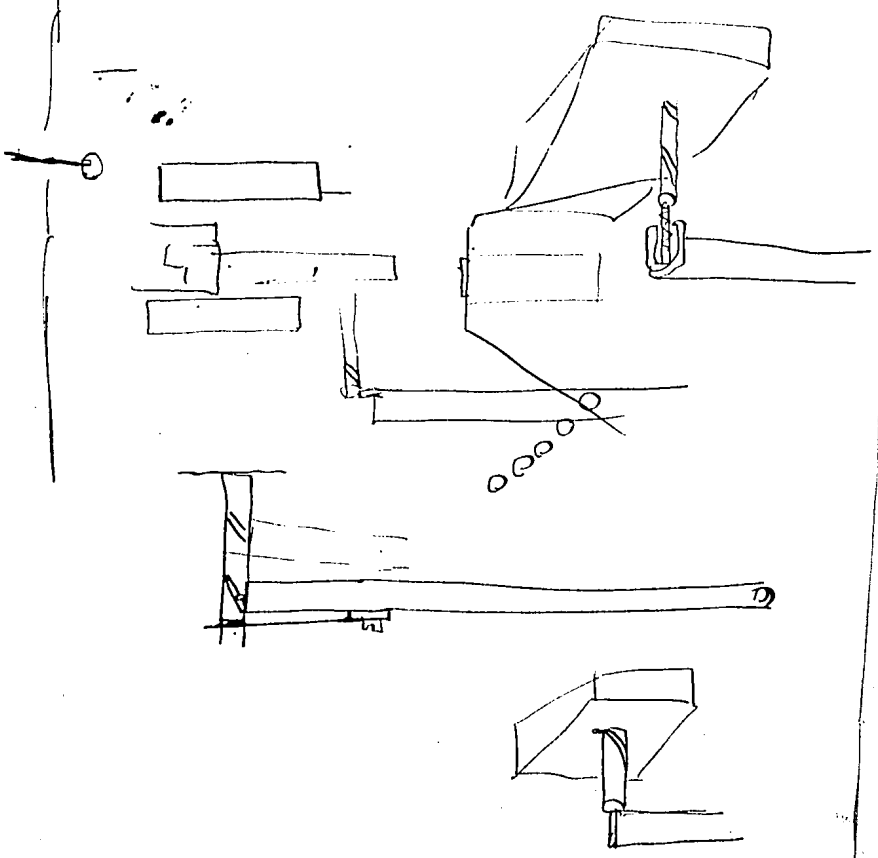

94
(2)

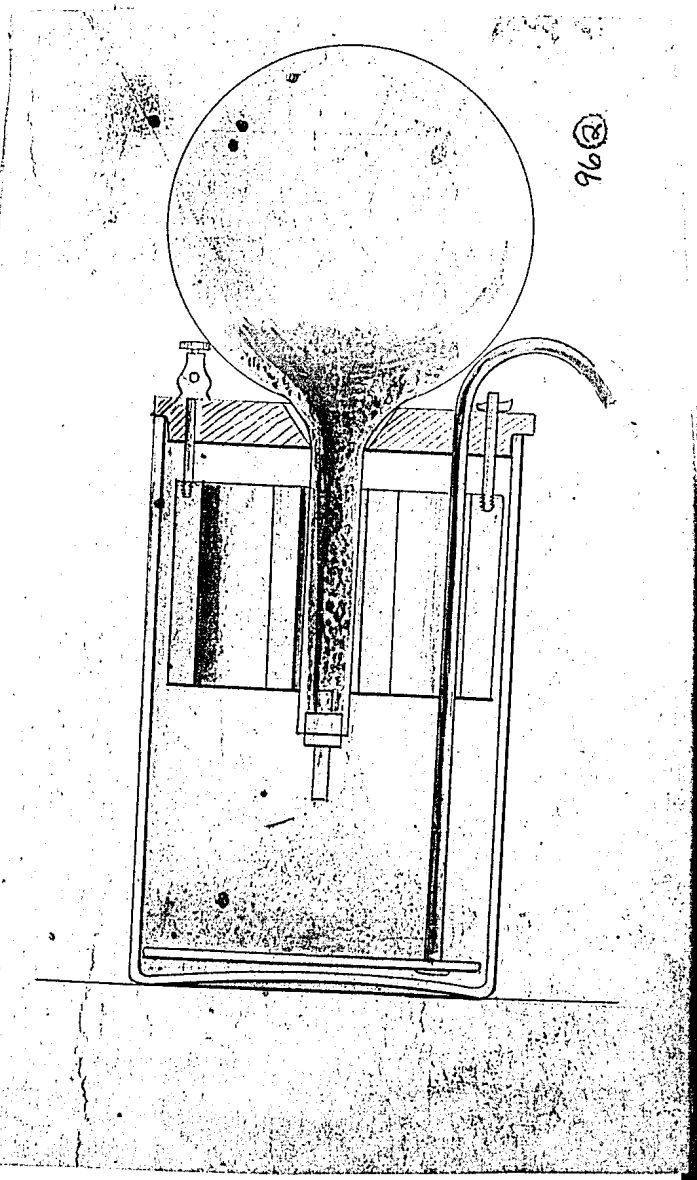




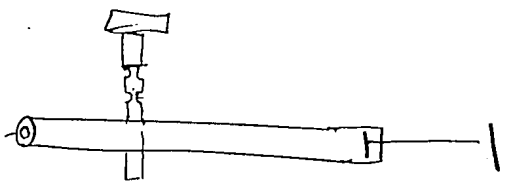
95

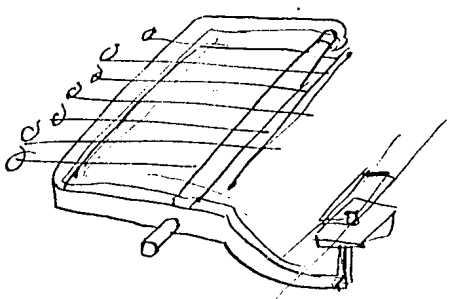


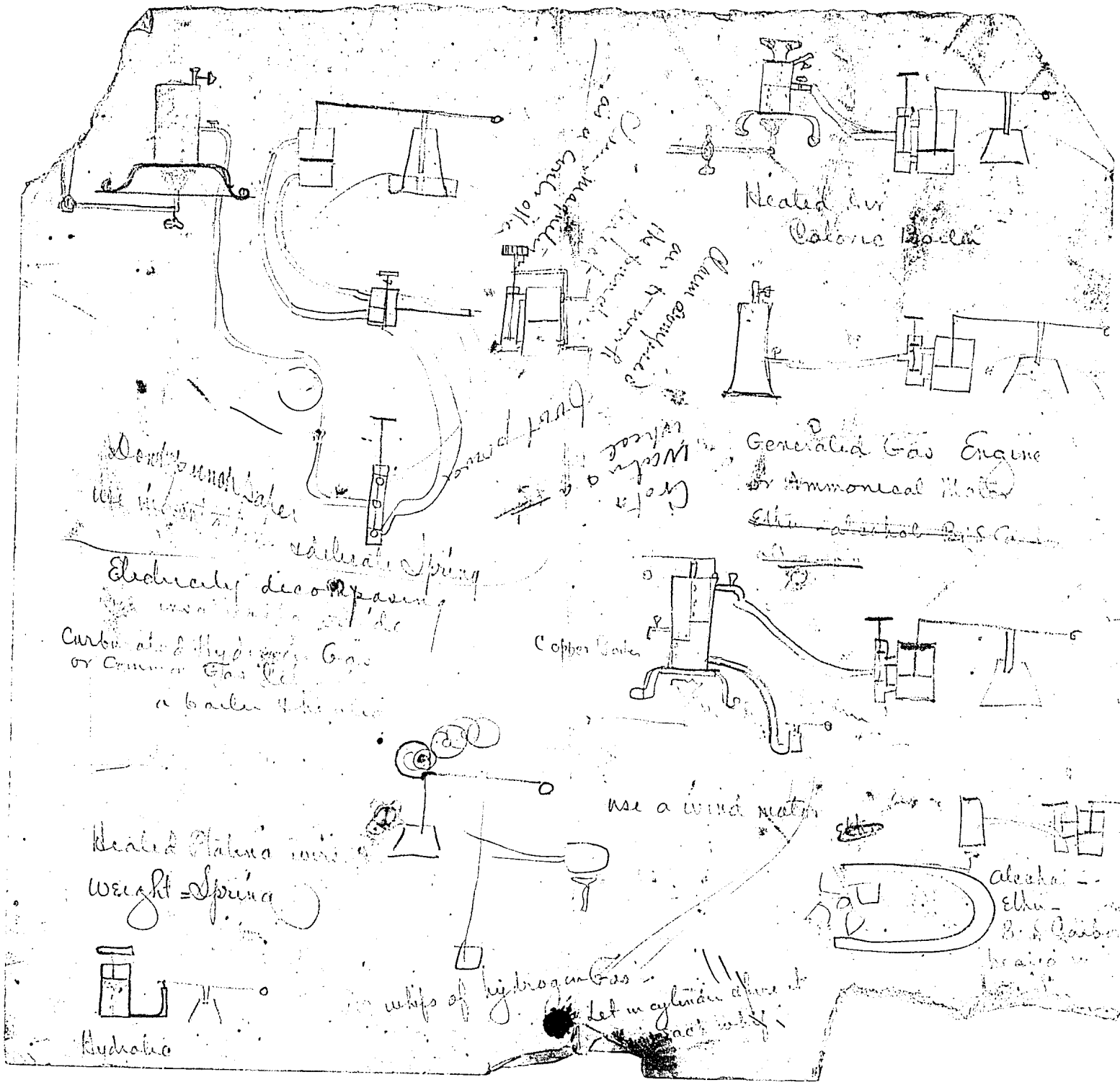


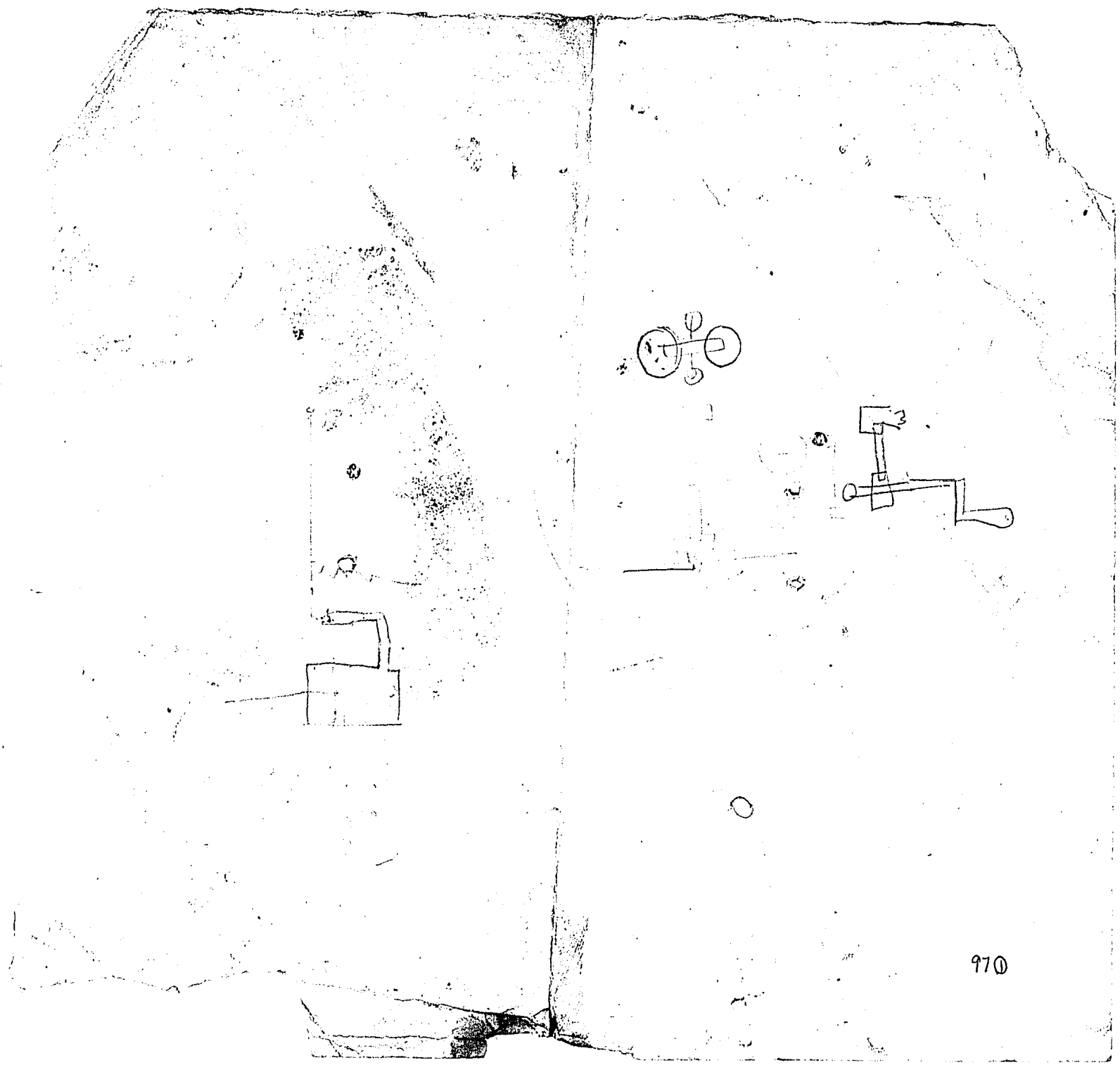


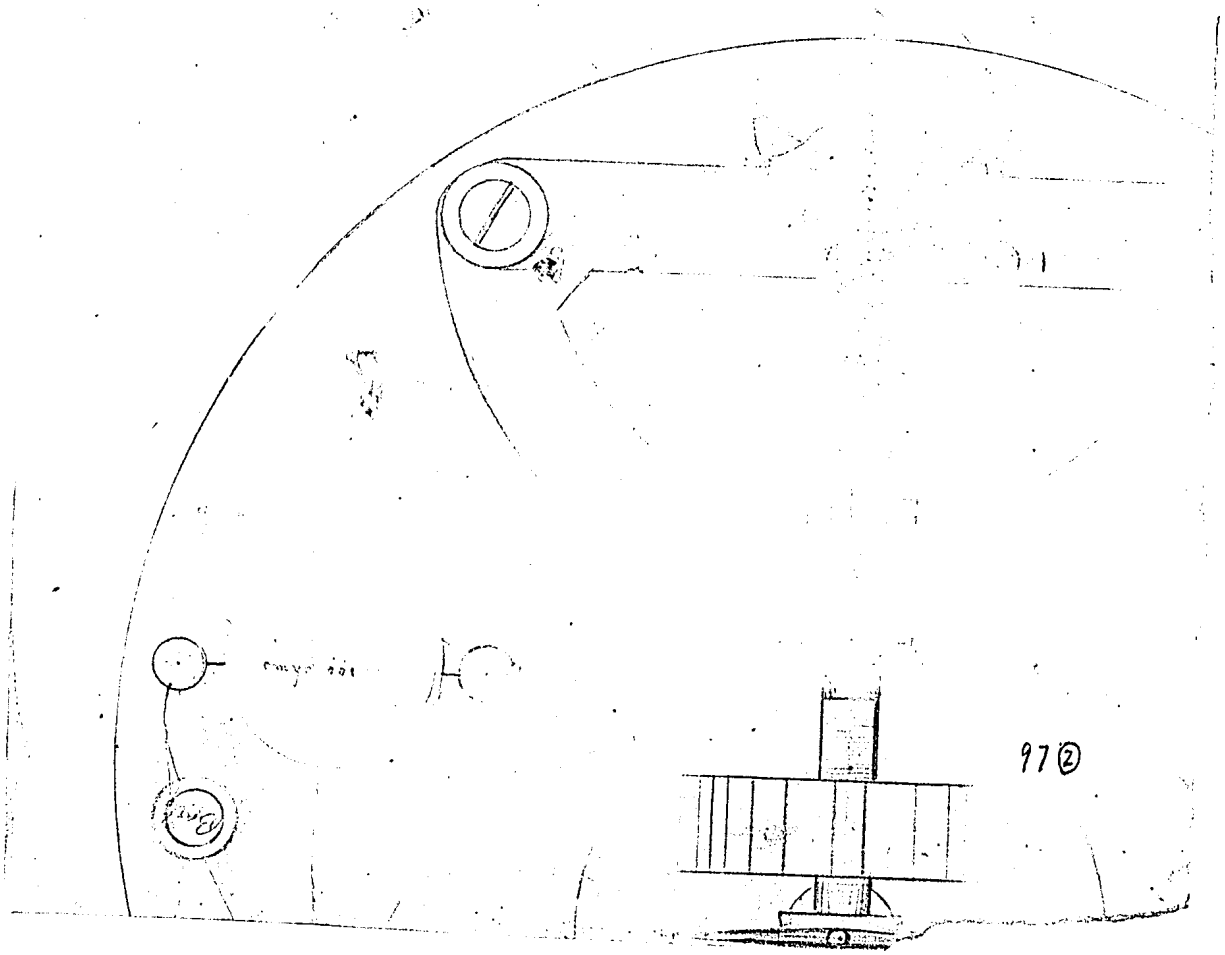
96

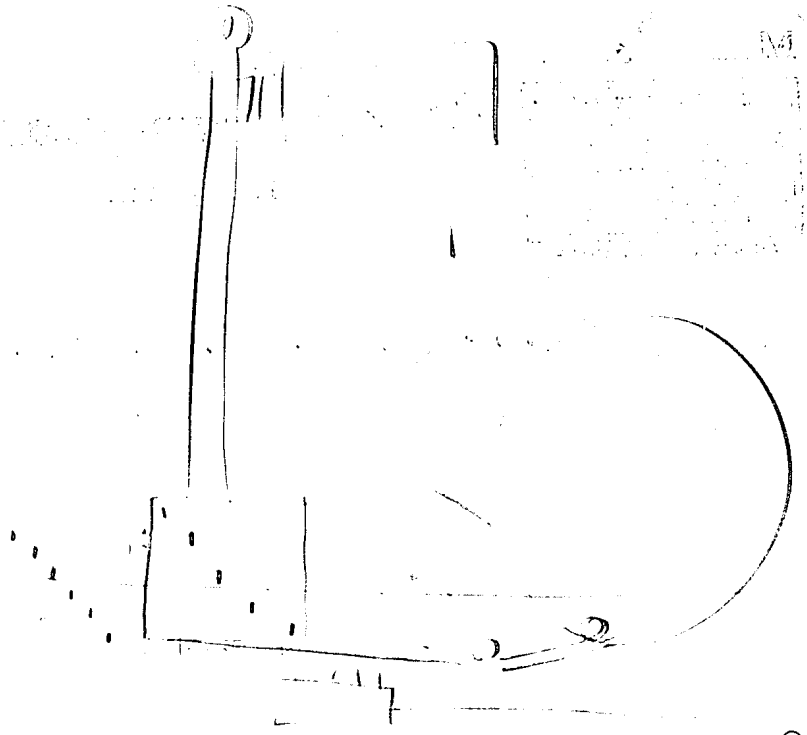




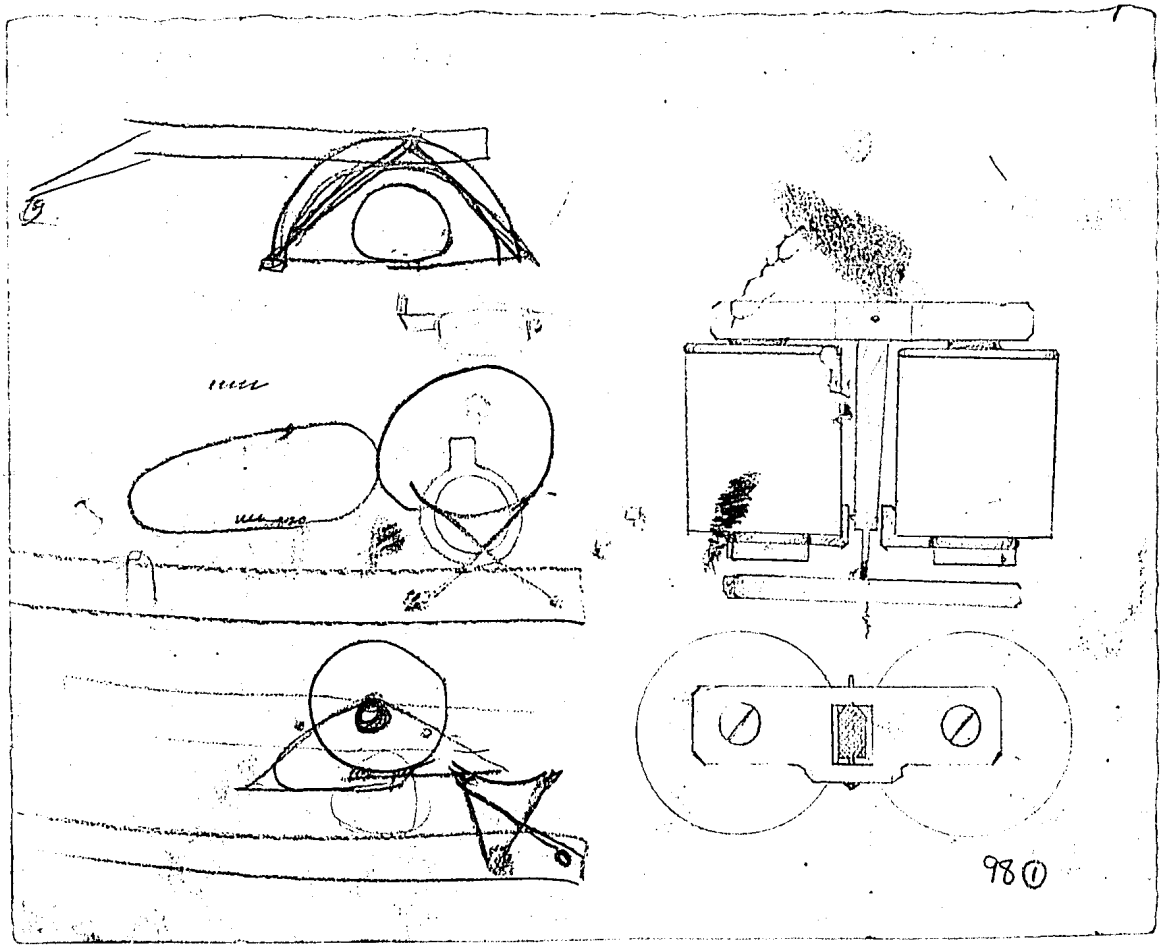

Heated Air
Caloric Engine
Generated Gas Engine
or Ammoniacal Water
Copper Boiler
Heated Platina wire
Weight = Spring
Hydraulic


970

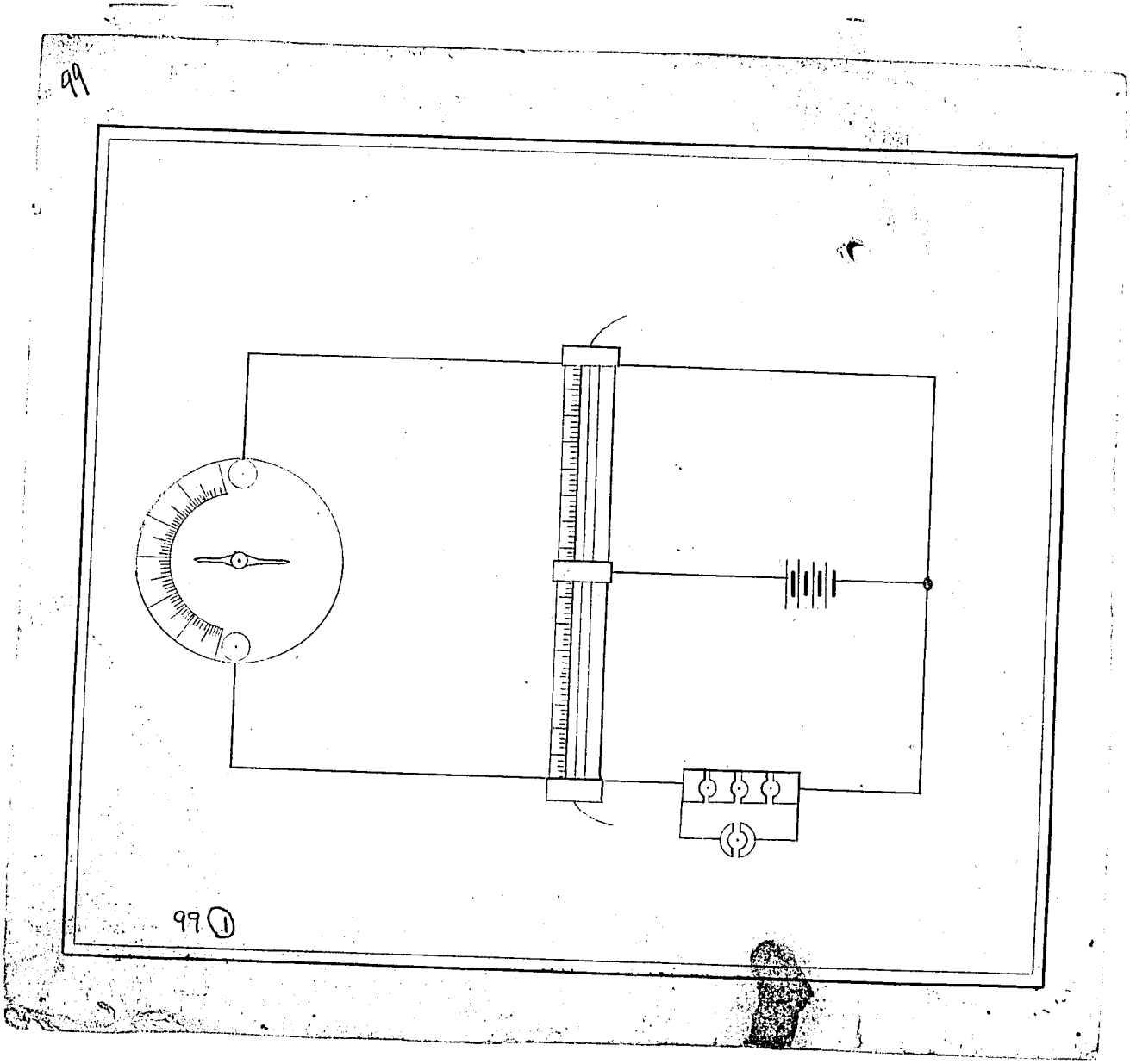

97②

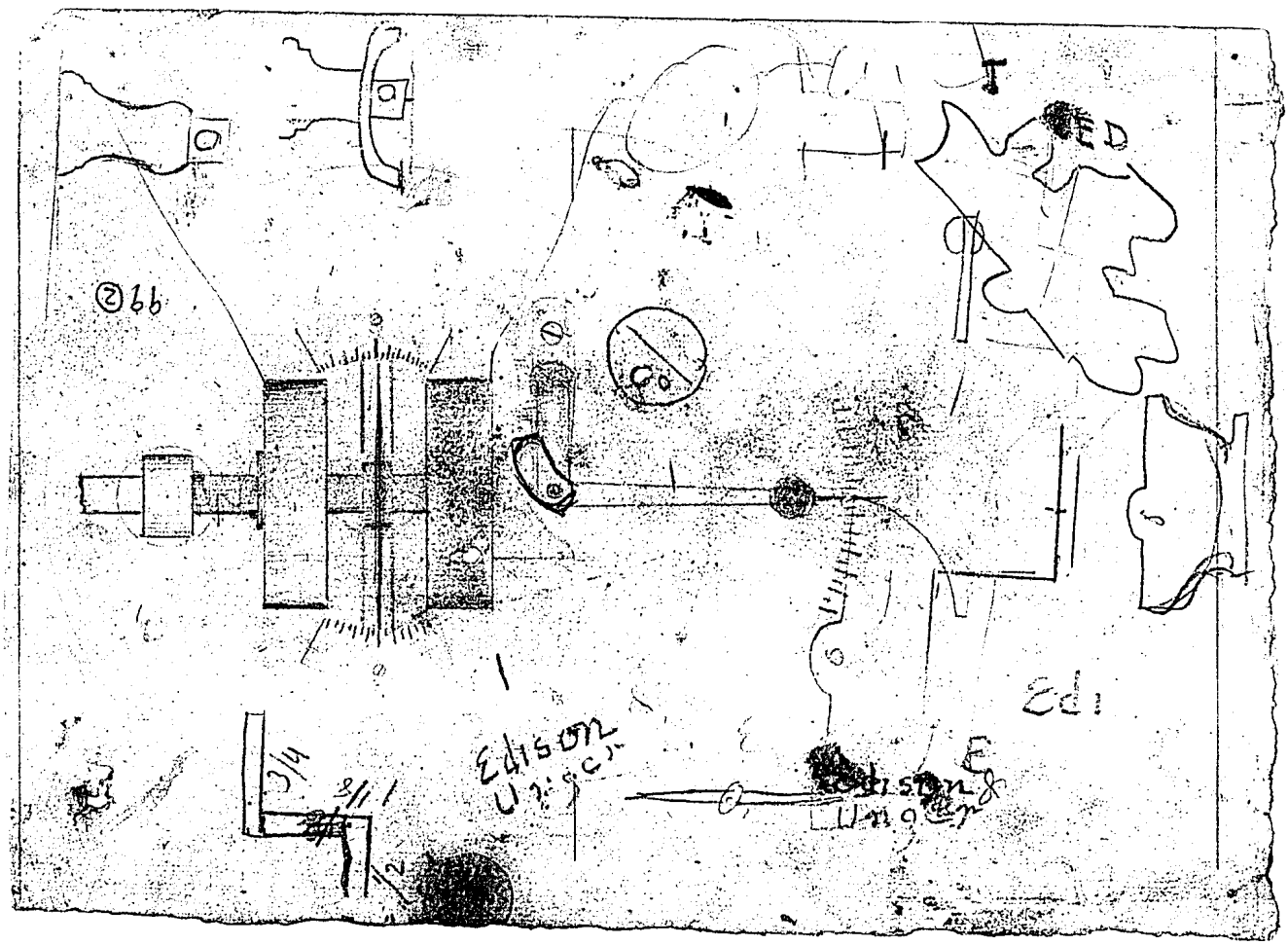


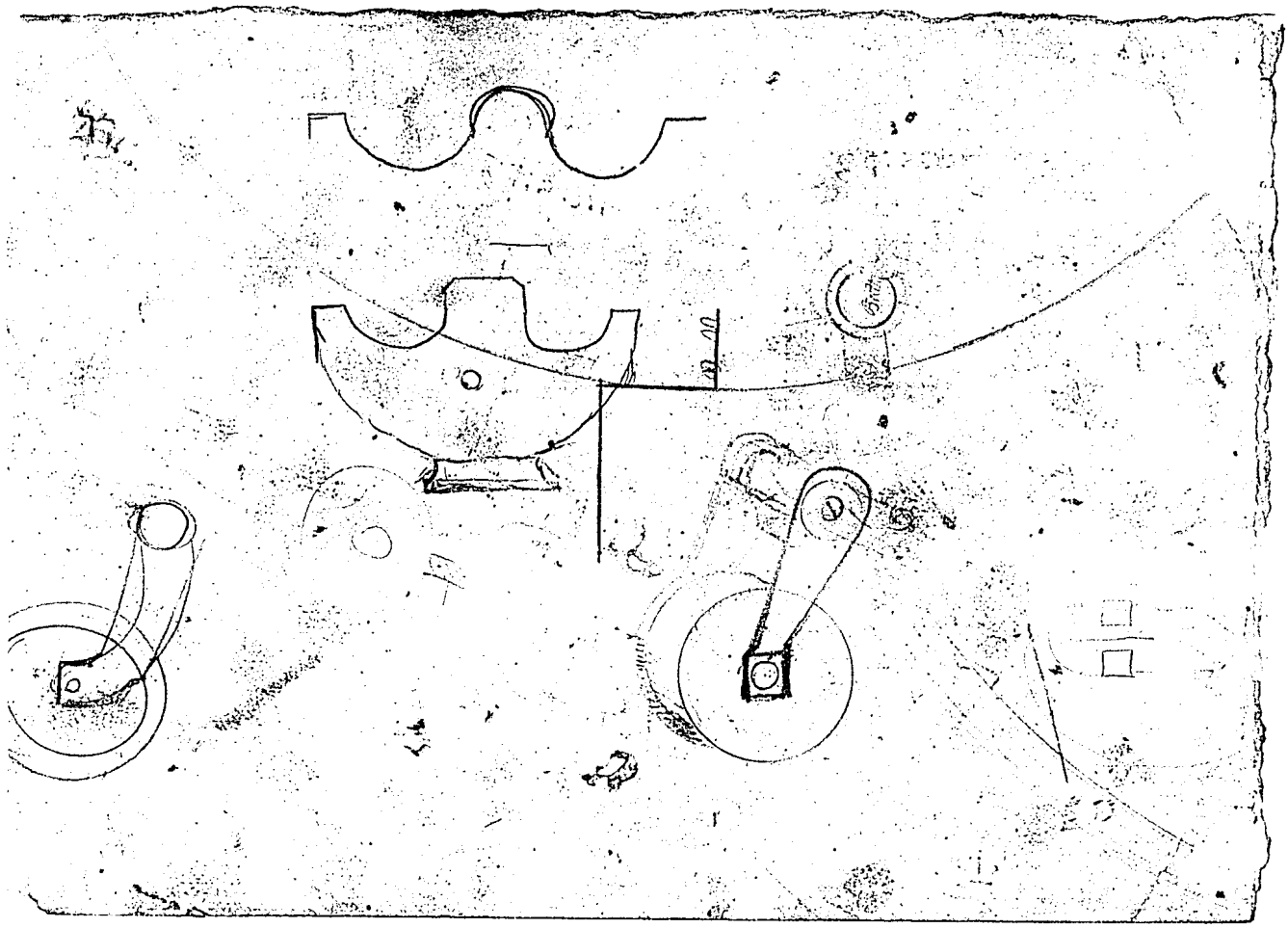
98②



98①


99
99 (1)


Edison
Edison



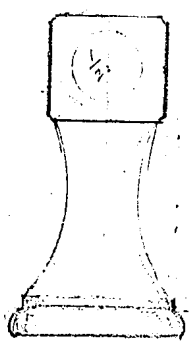
100

$\frac{3}{4}$ inch

$\frac{1}{4}$ inch.

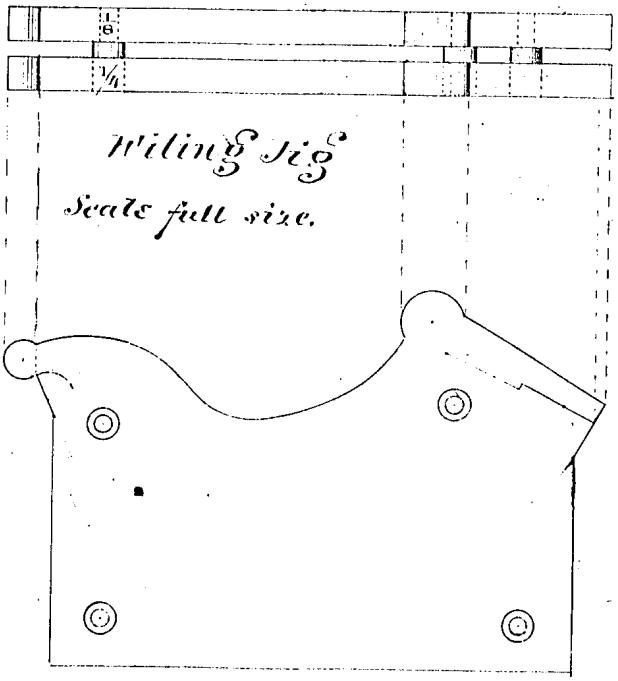
Top $\frac{7}{8}$ square

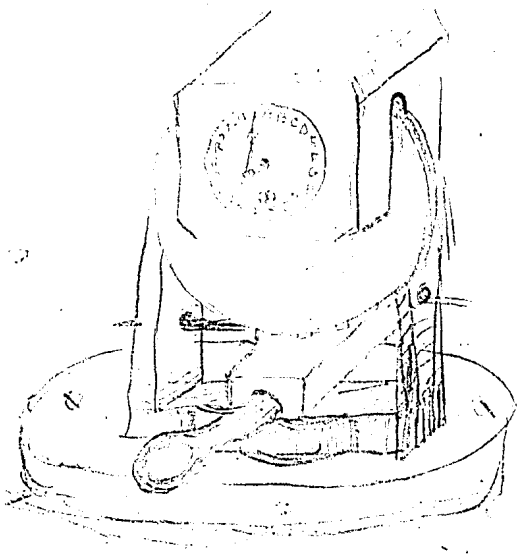
Actual size



$2\frac{3}{8}$

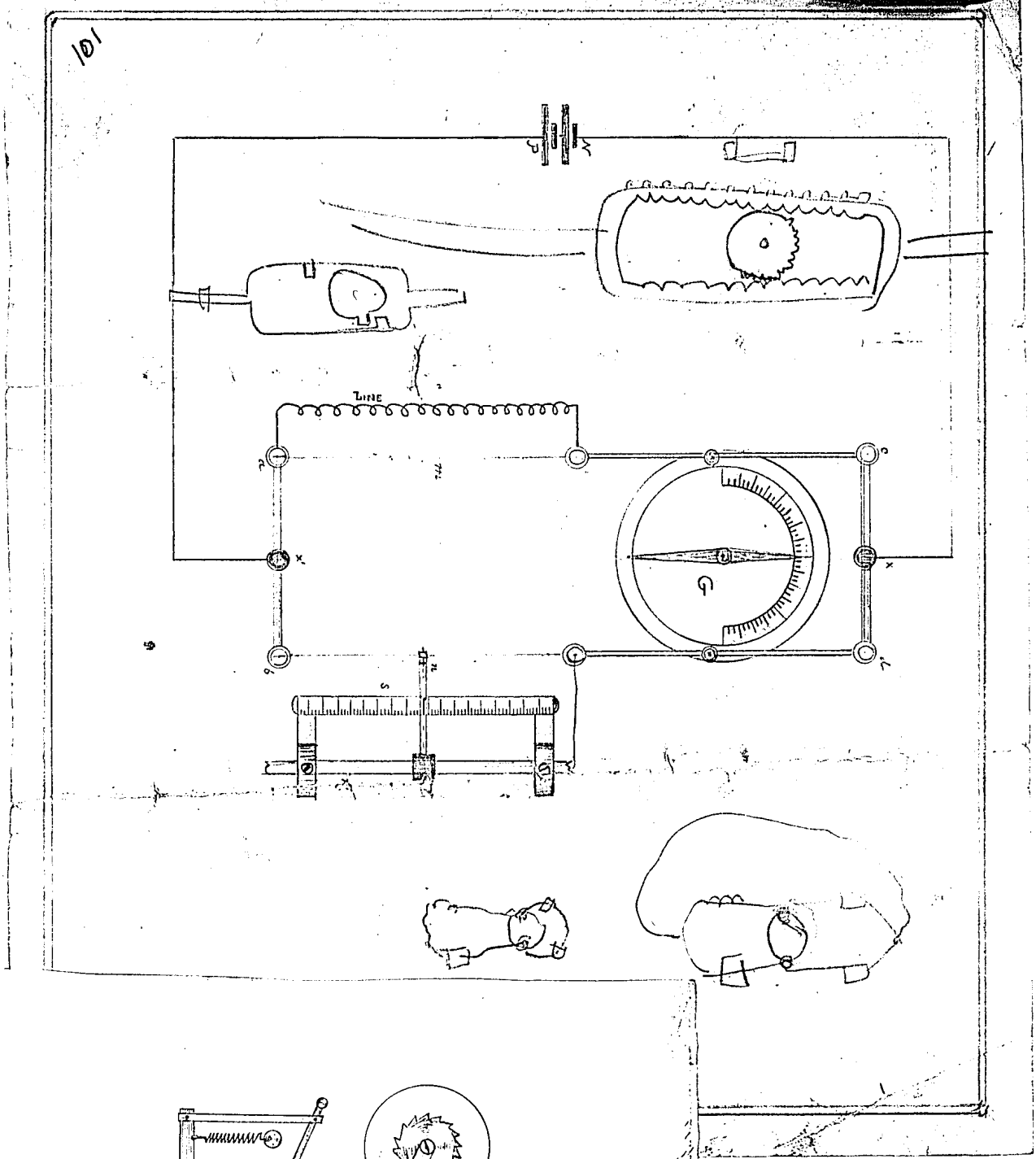
(2) 001

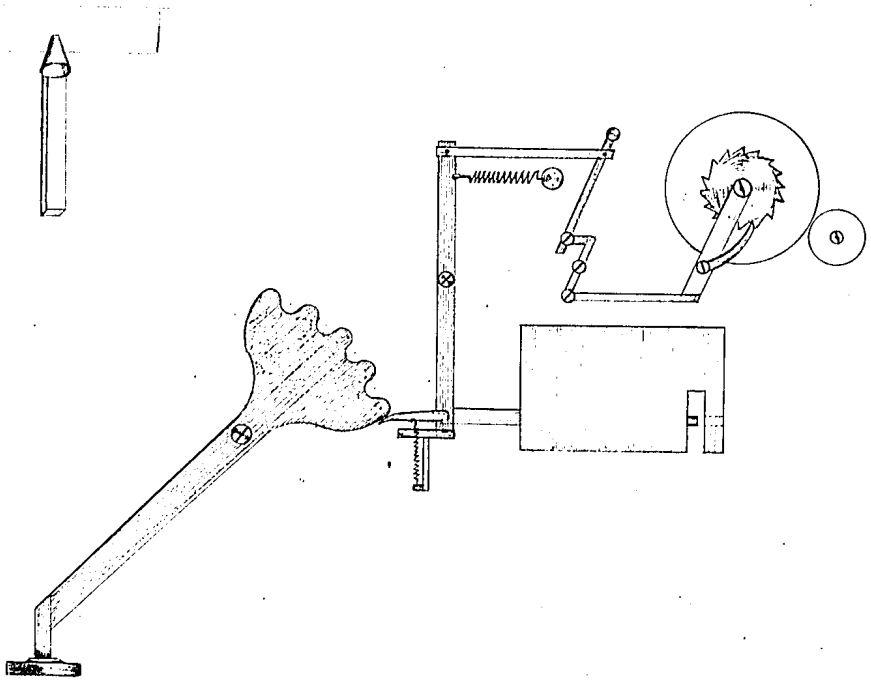




100①

100





101

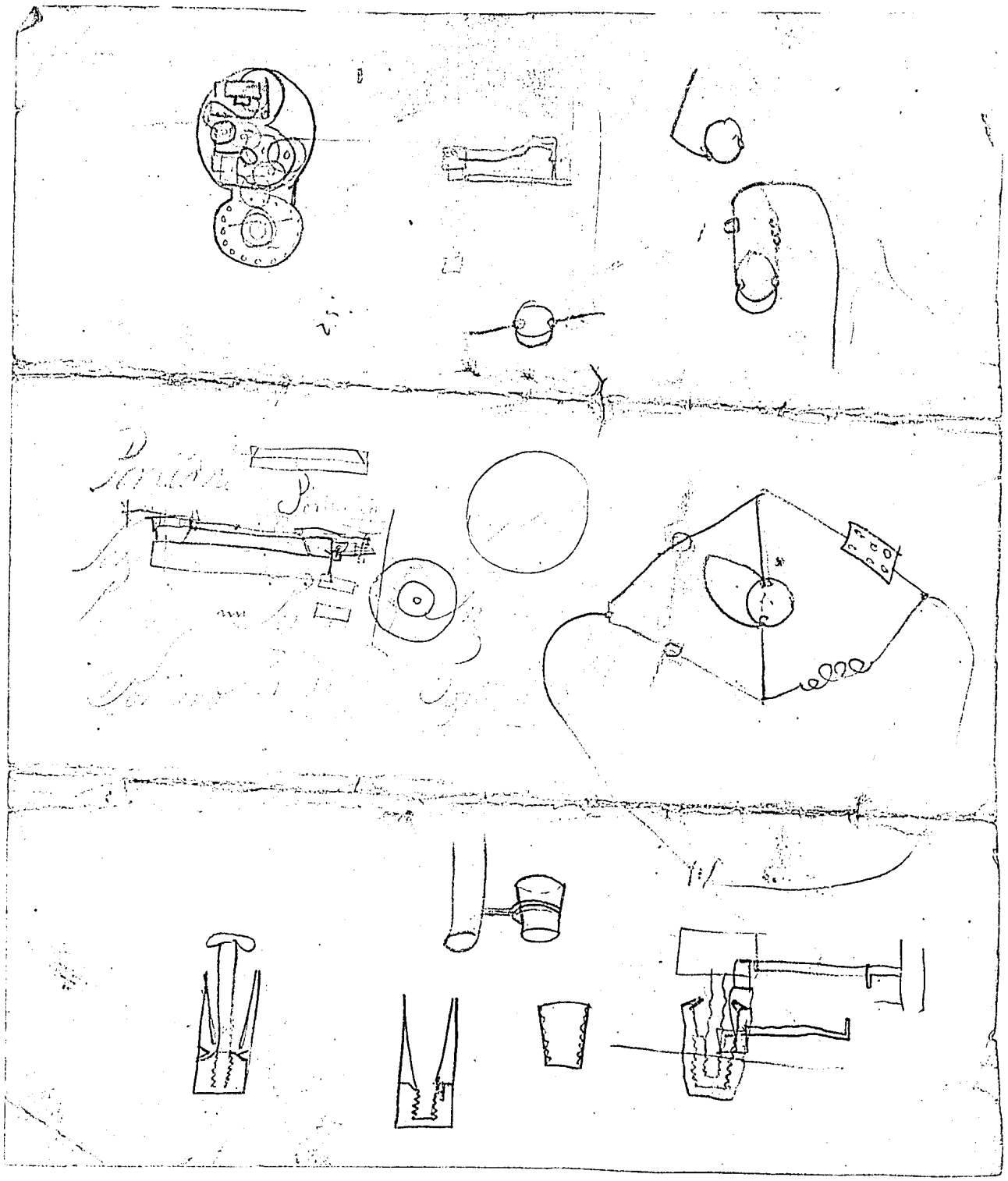


FIG 31

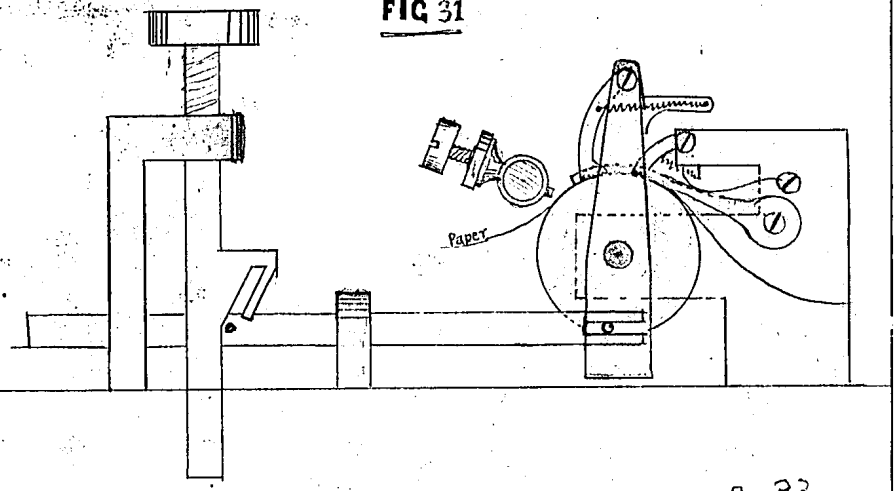


Fig 33

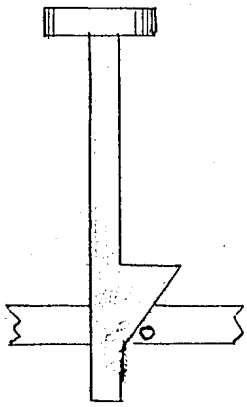


Fig 32

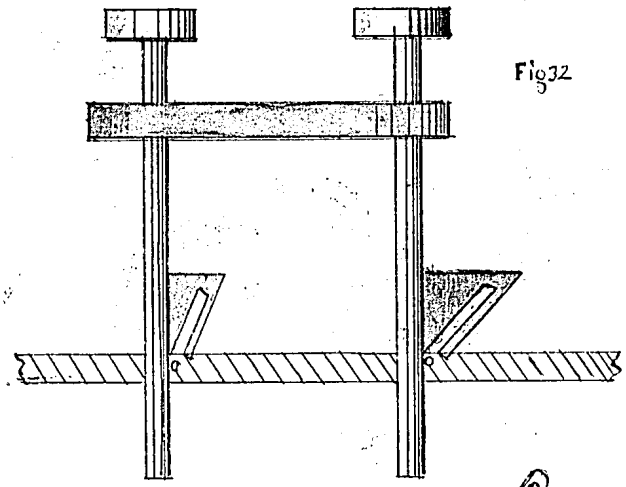


Fig 35

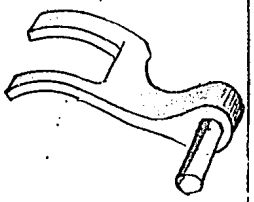


Fig 34

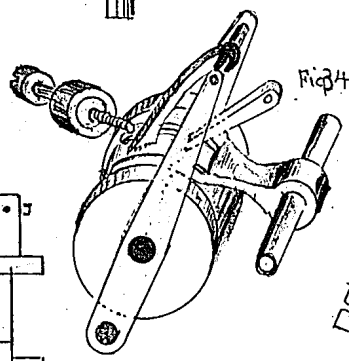


Fig 37

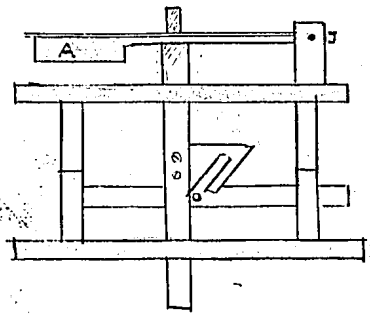
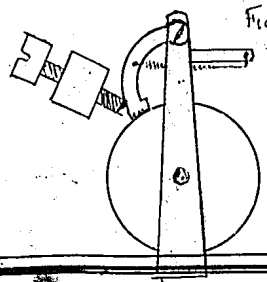
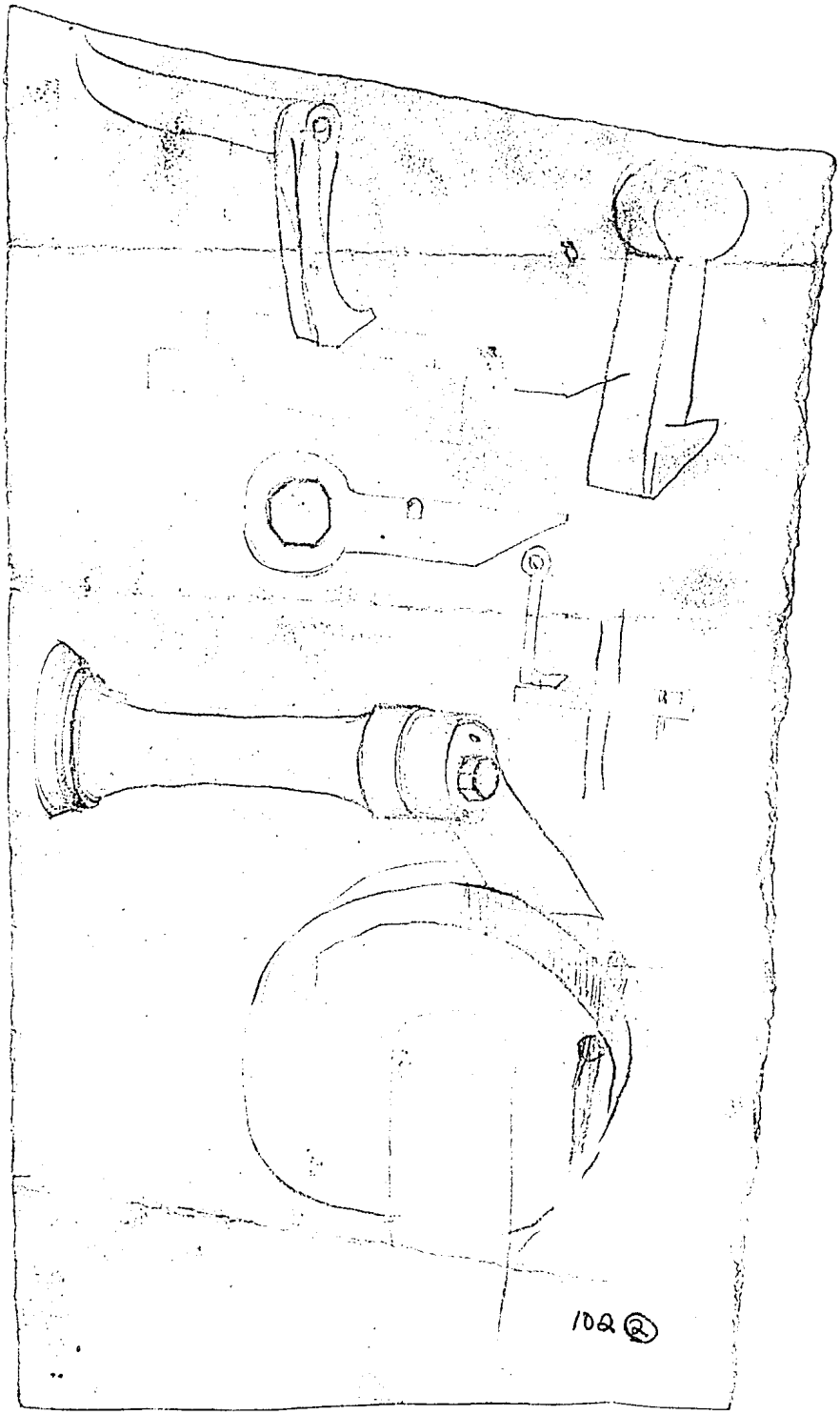
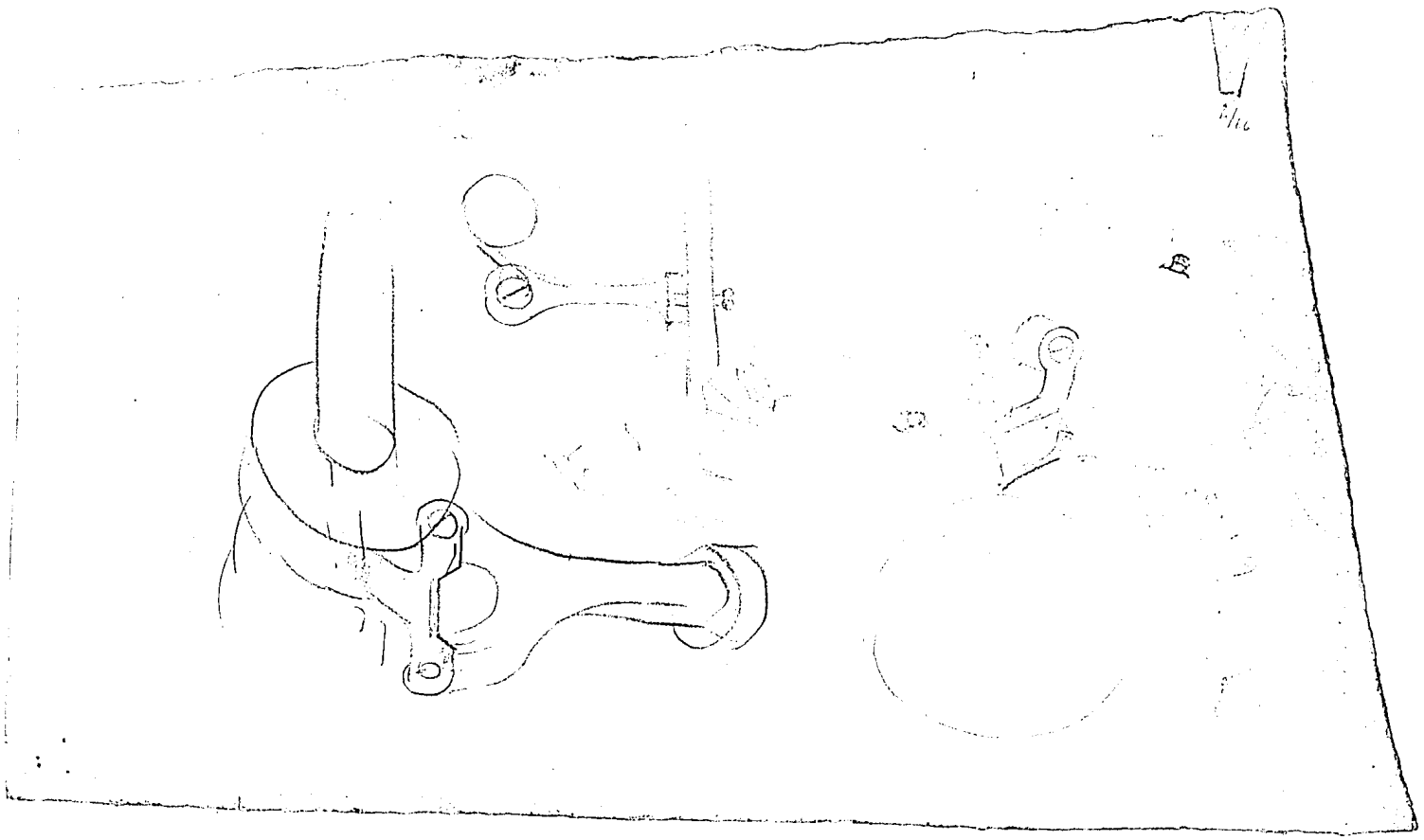


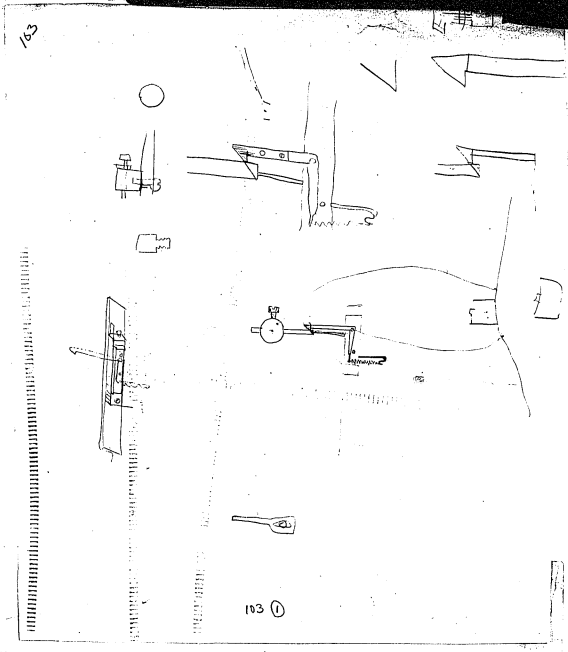
Fig 36



1020 (1)

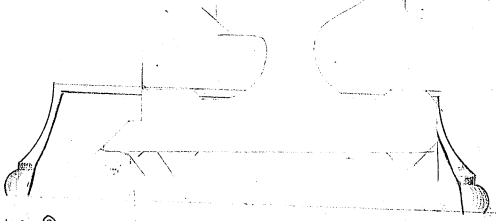

102 (2)





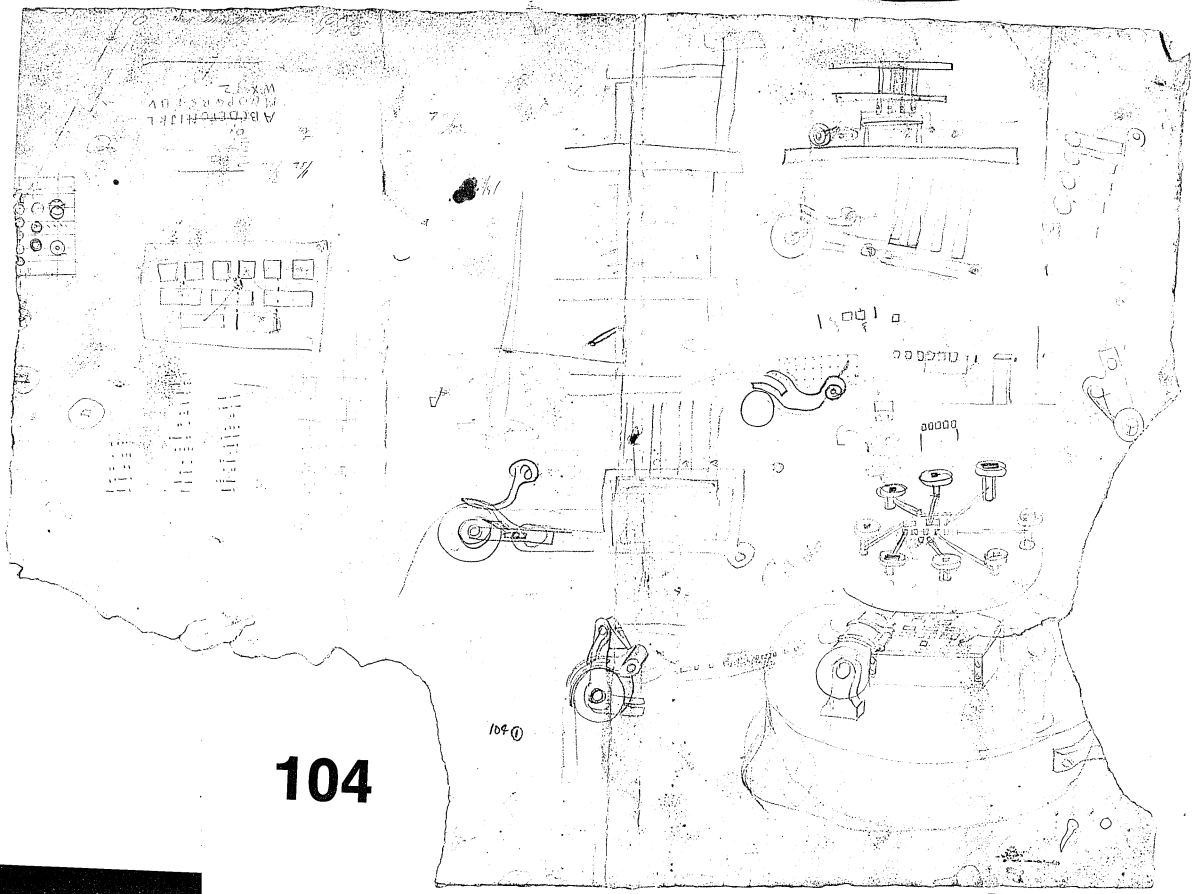
103 ①

Please make pattern for Base. The drawing is actual size - have Sharp corners and do not get pattern [illegible] drawing

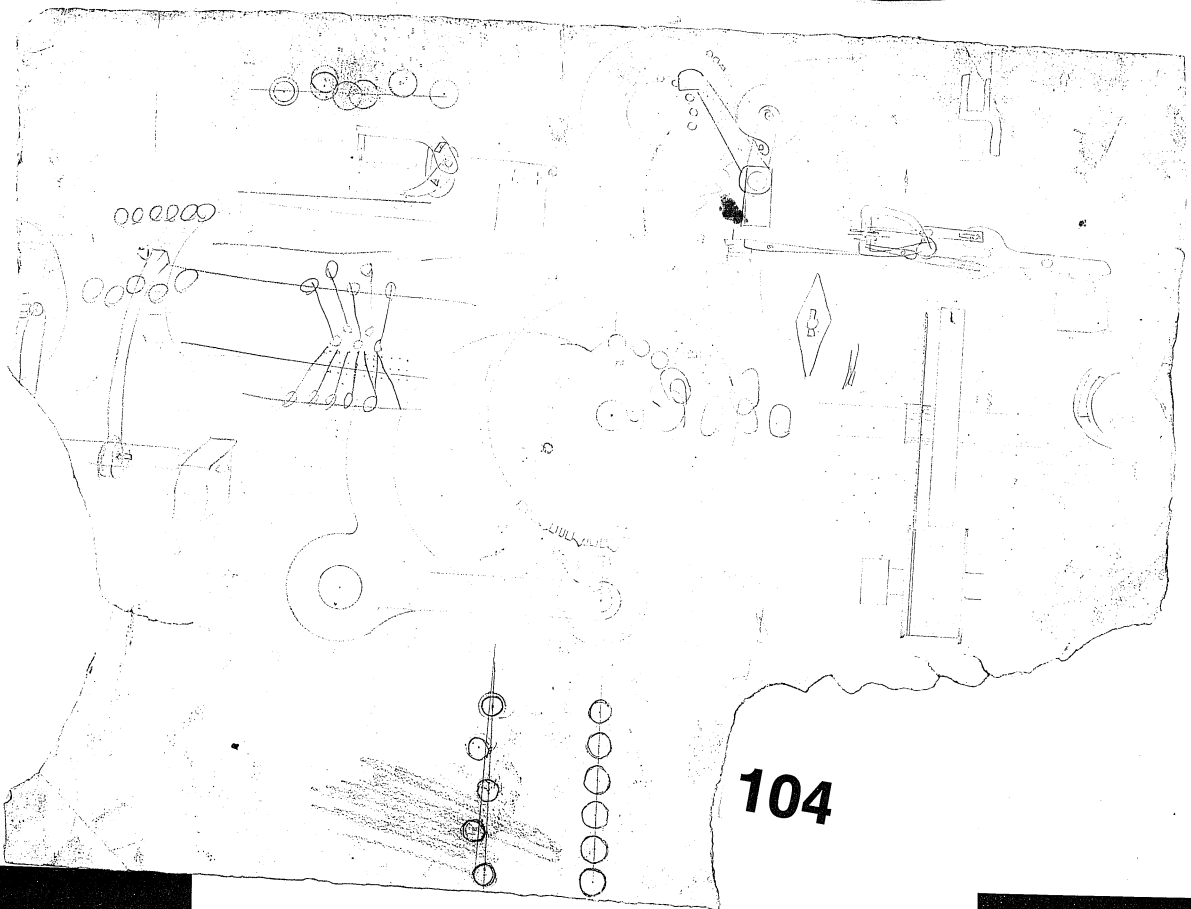


103 ②

103

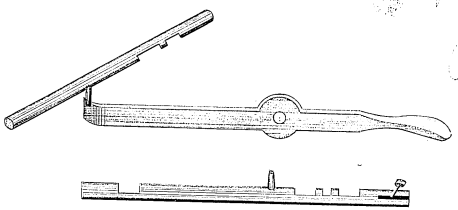


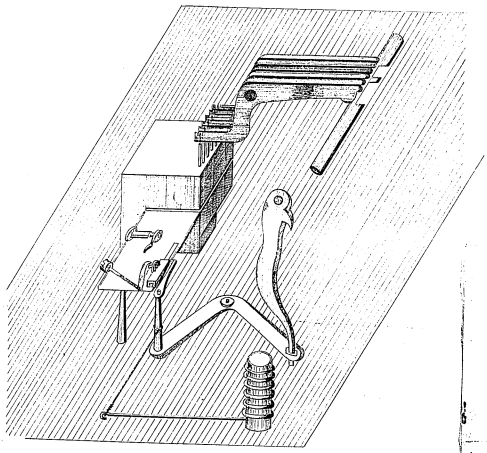
104



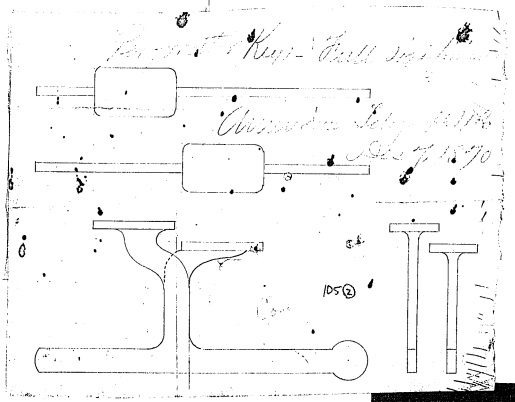
105

Reforma de Perforatrices



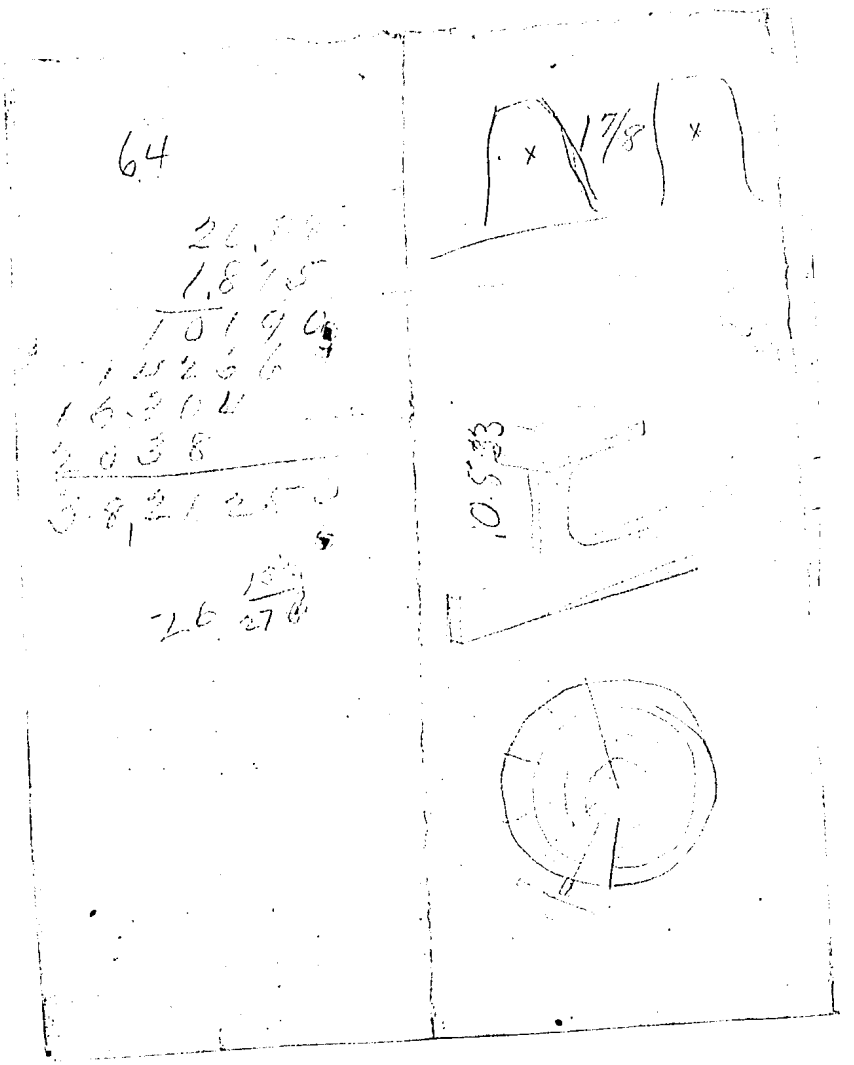


105①

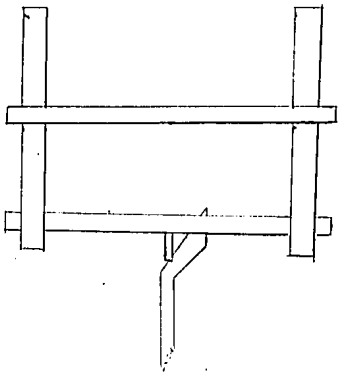


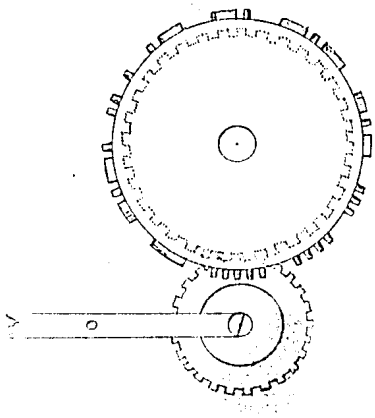
105②

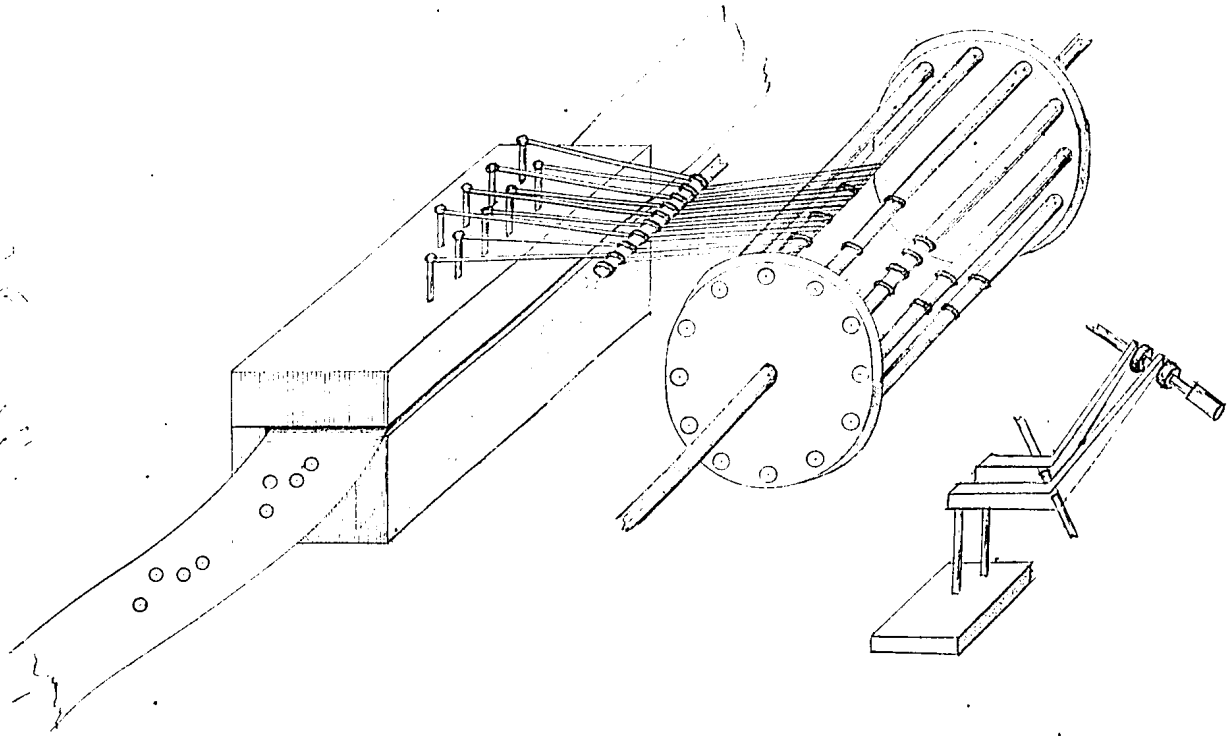
105


64
1 7/8
10 5/8

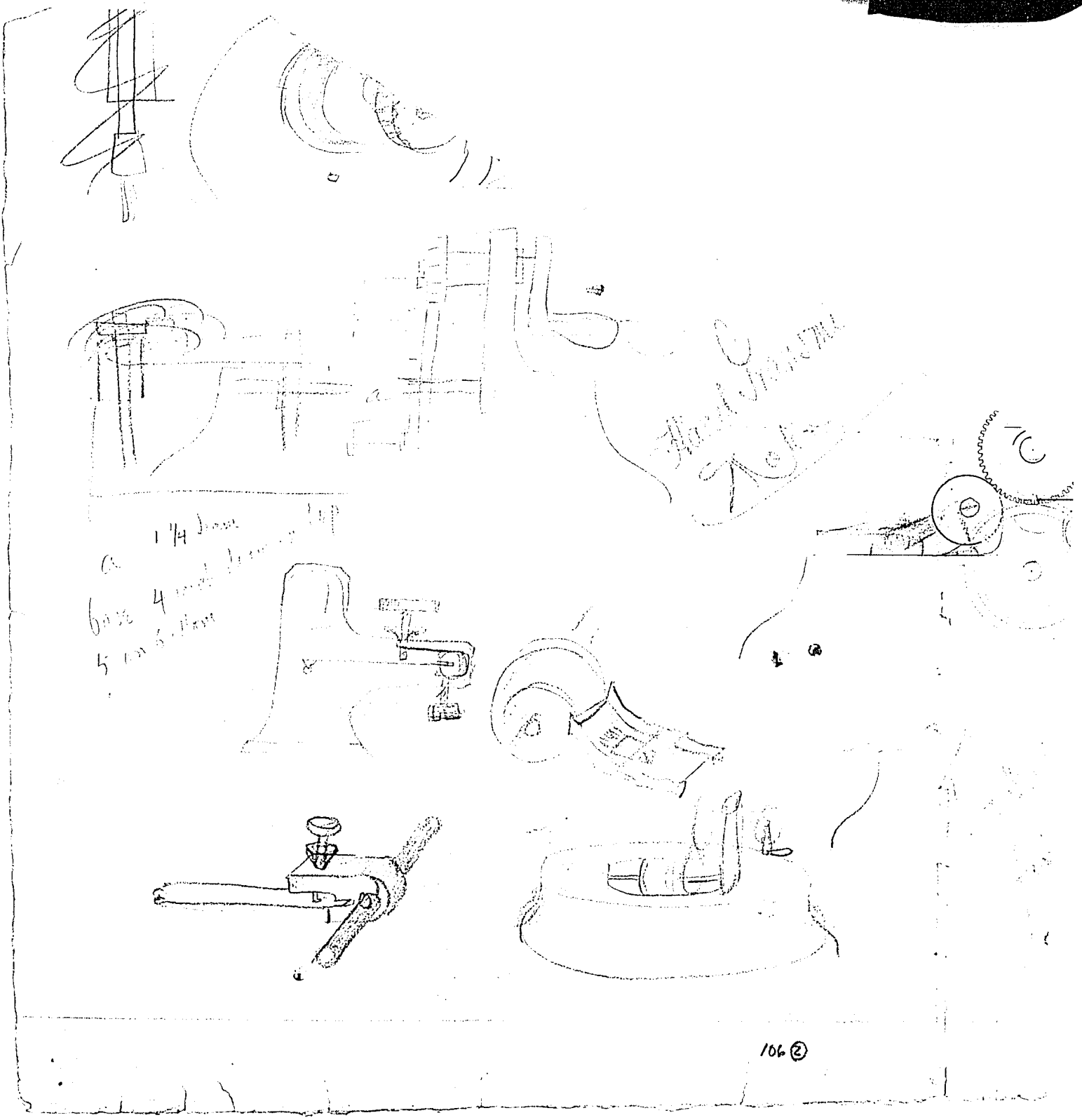
106

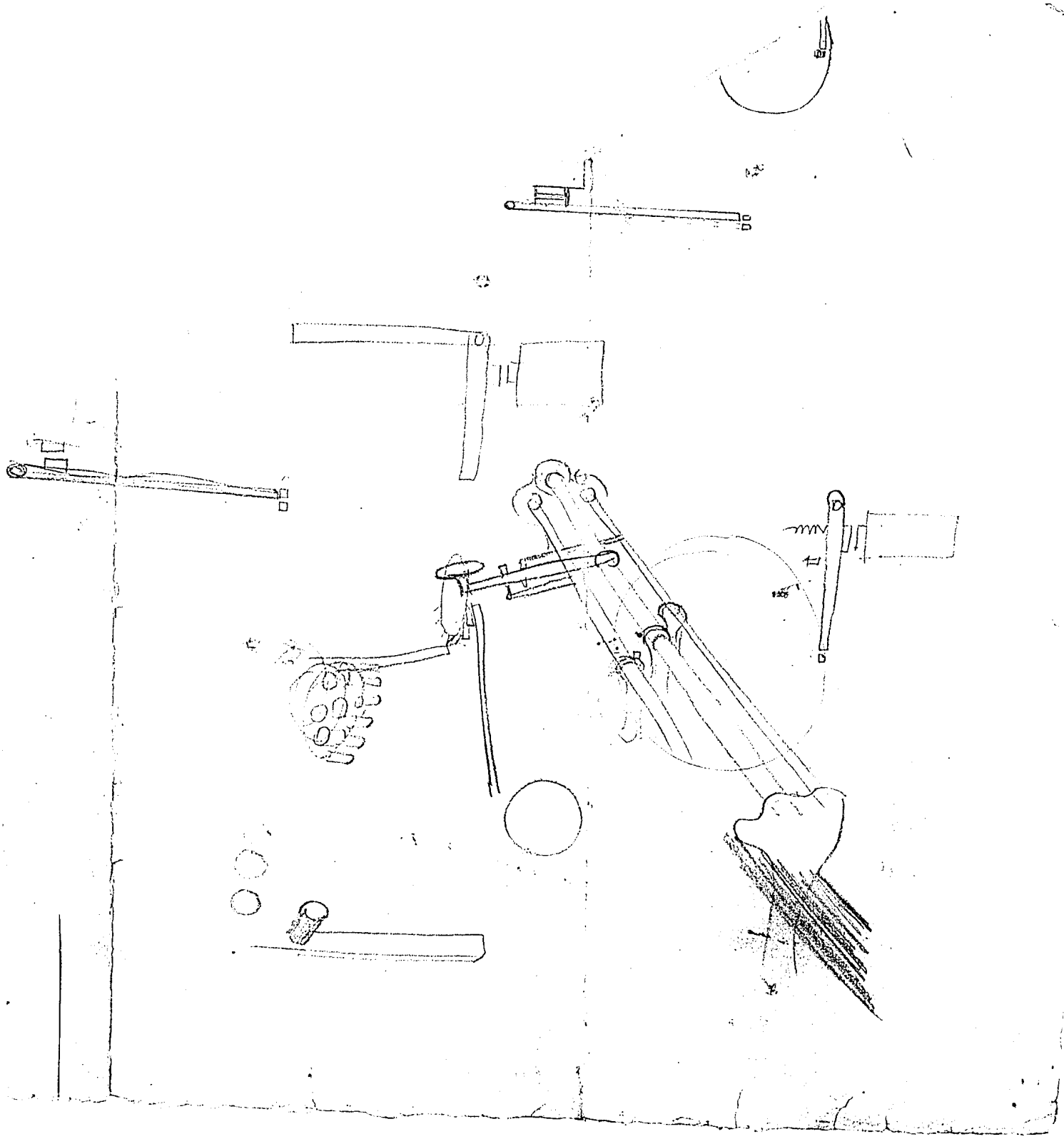


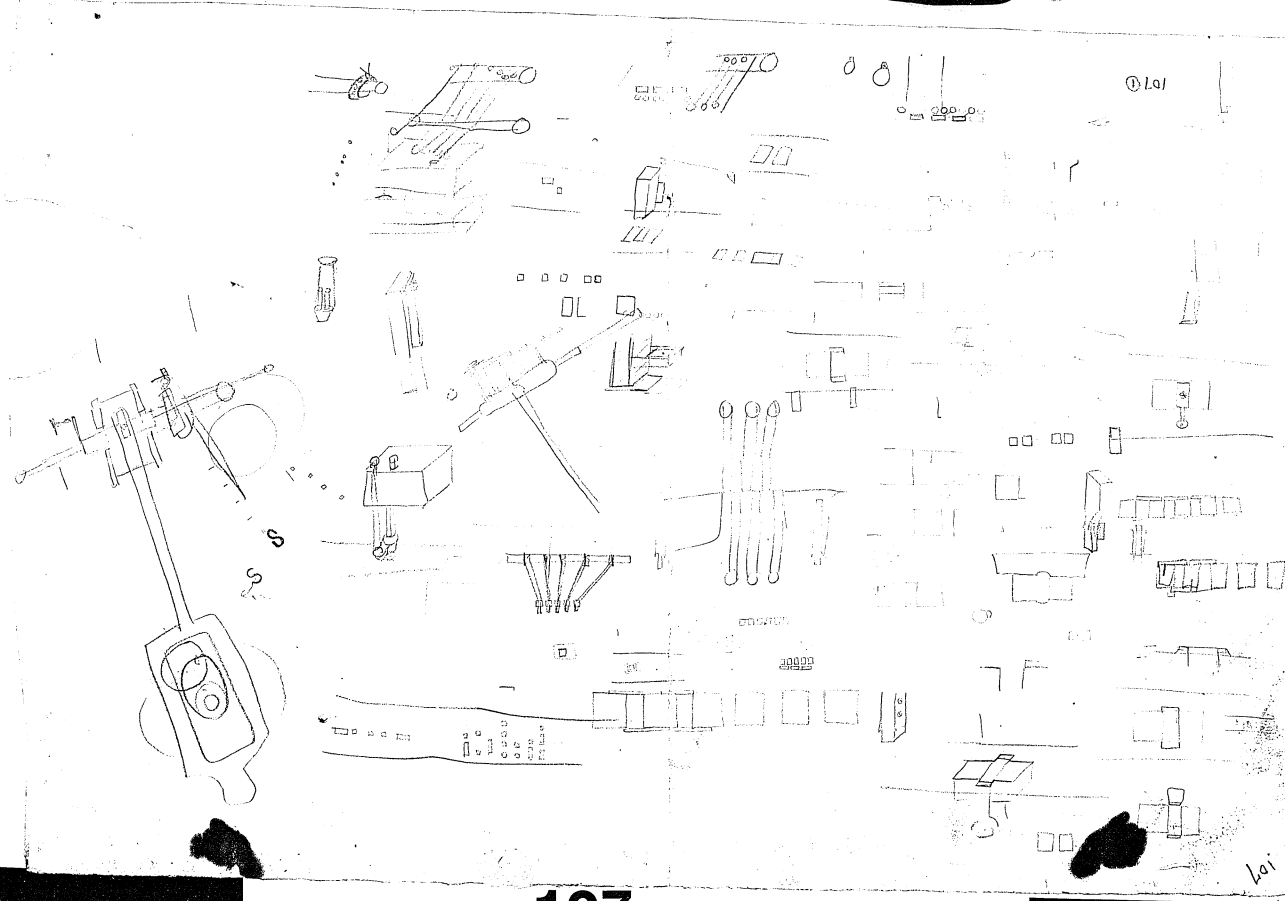


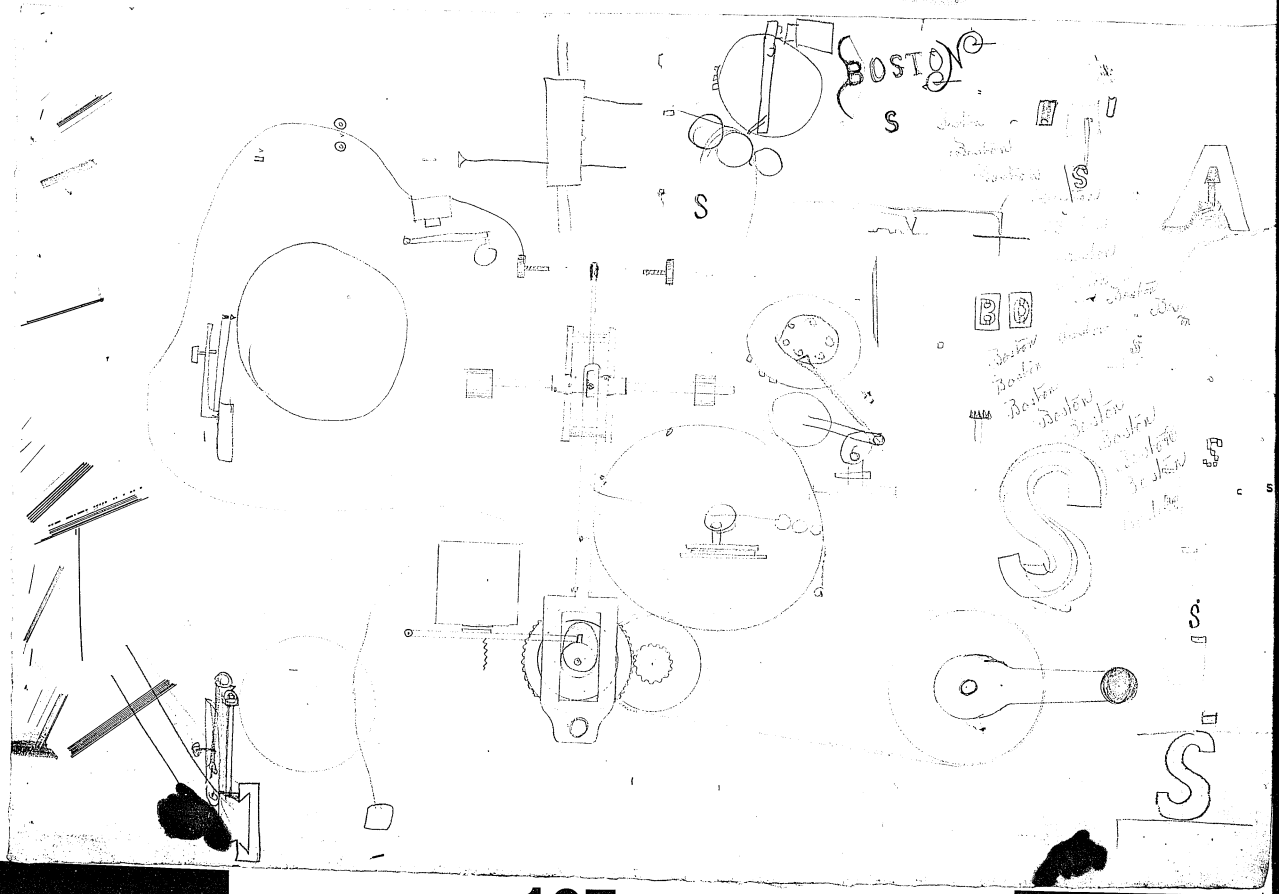


106①


1 1/4
106 ②



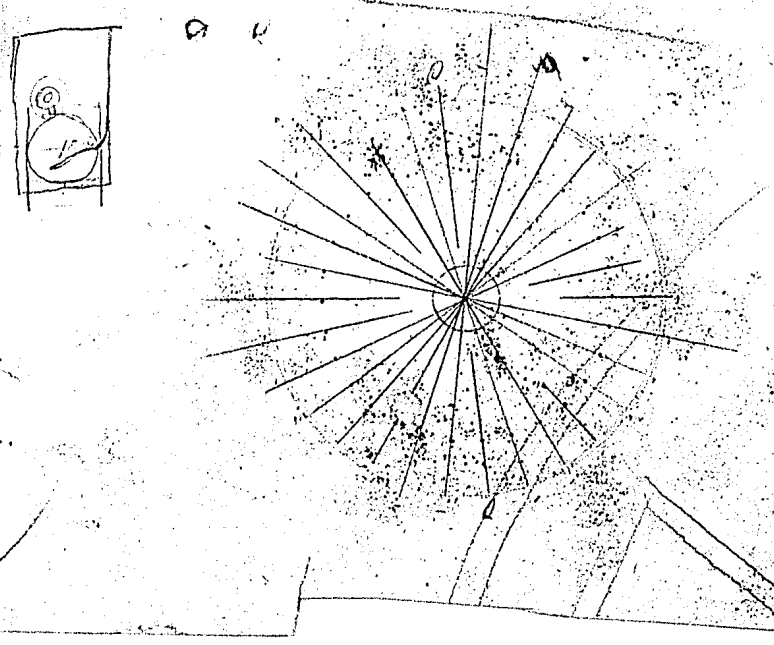


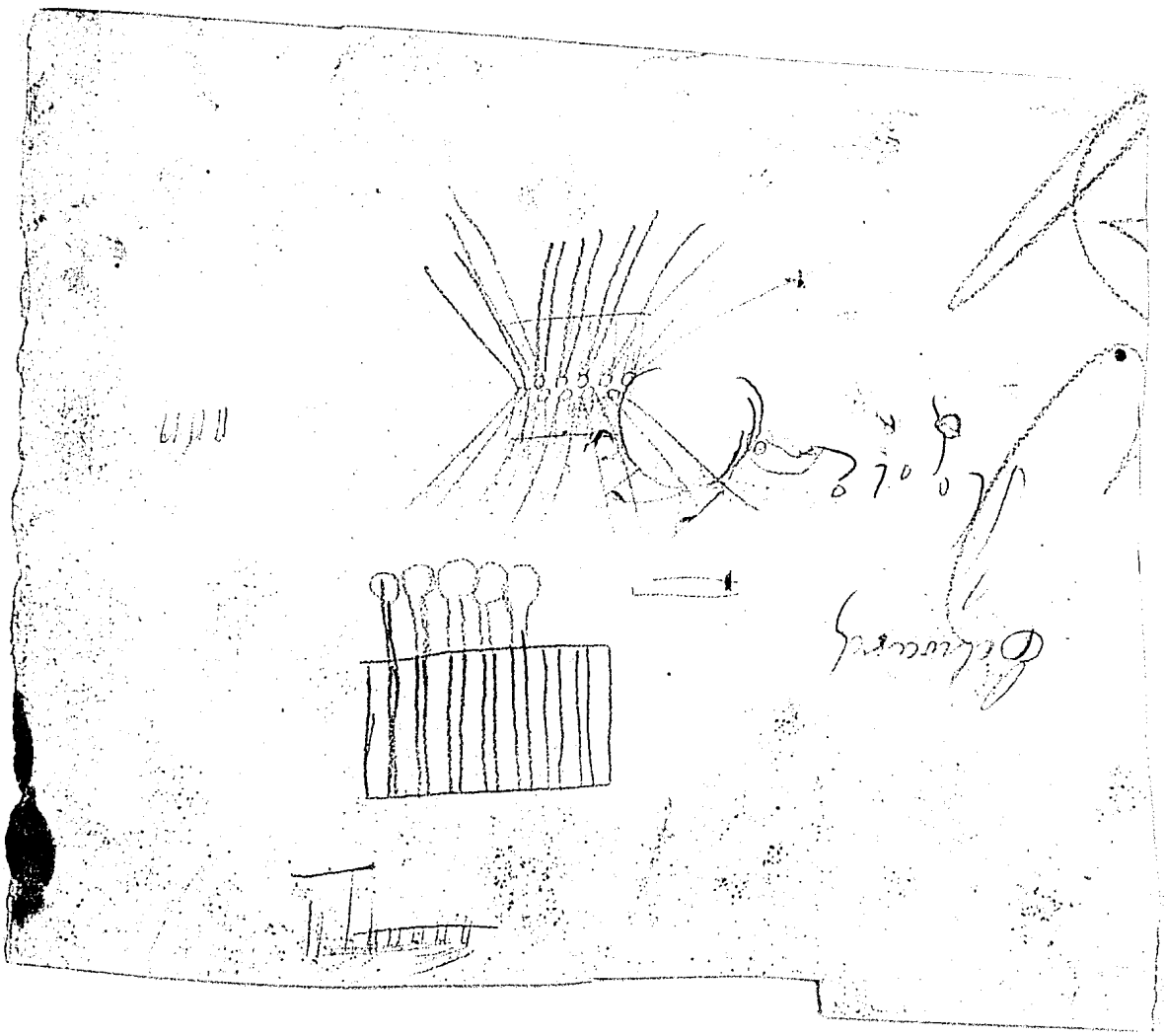

BOSTON

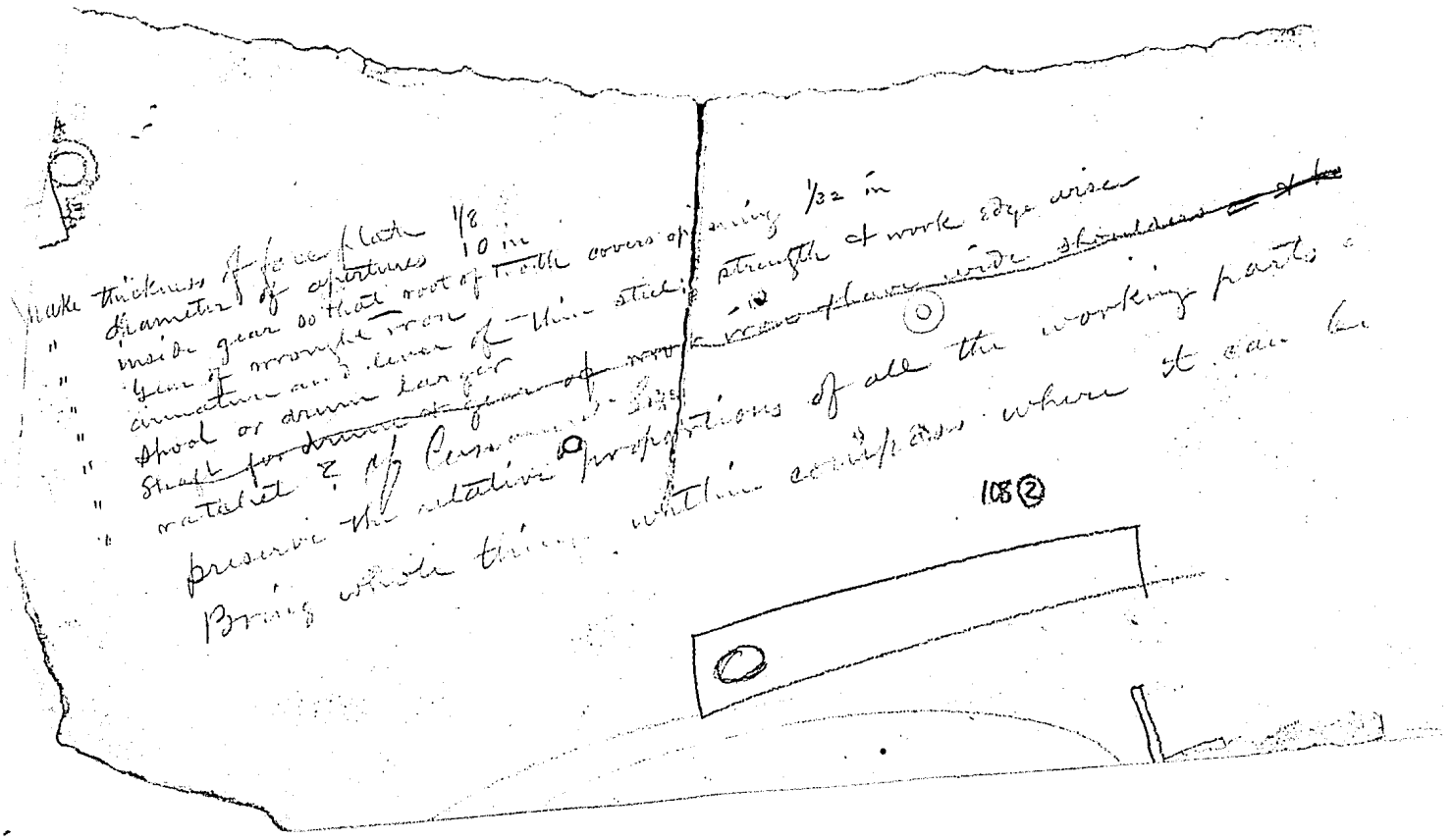
(2) L01

[redacted]

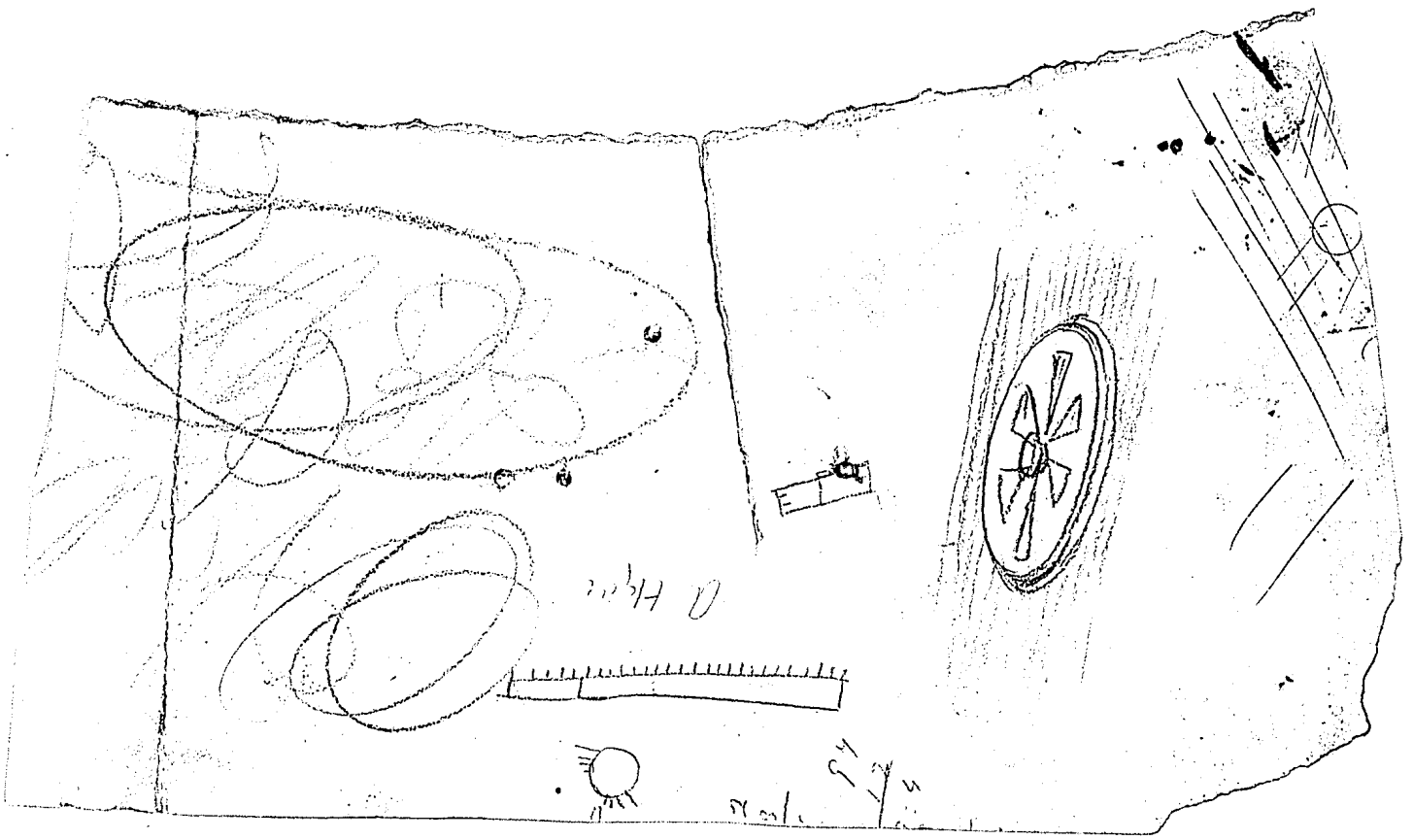
- same model except diameter of radiator
- applied fixture for heating or ventilation

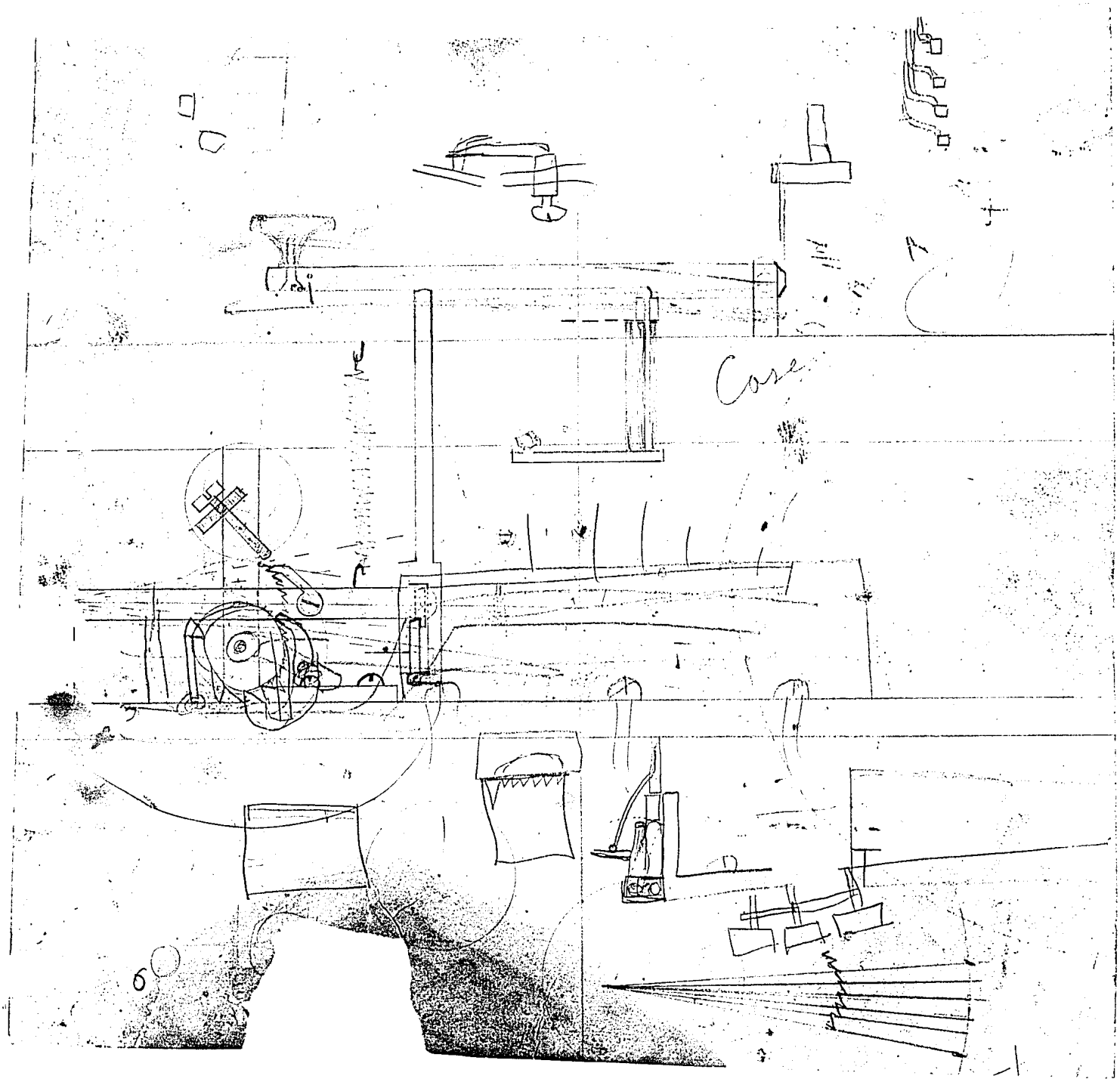


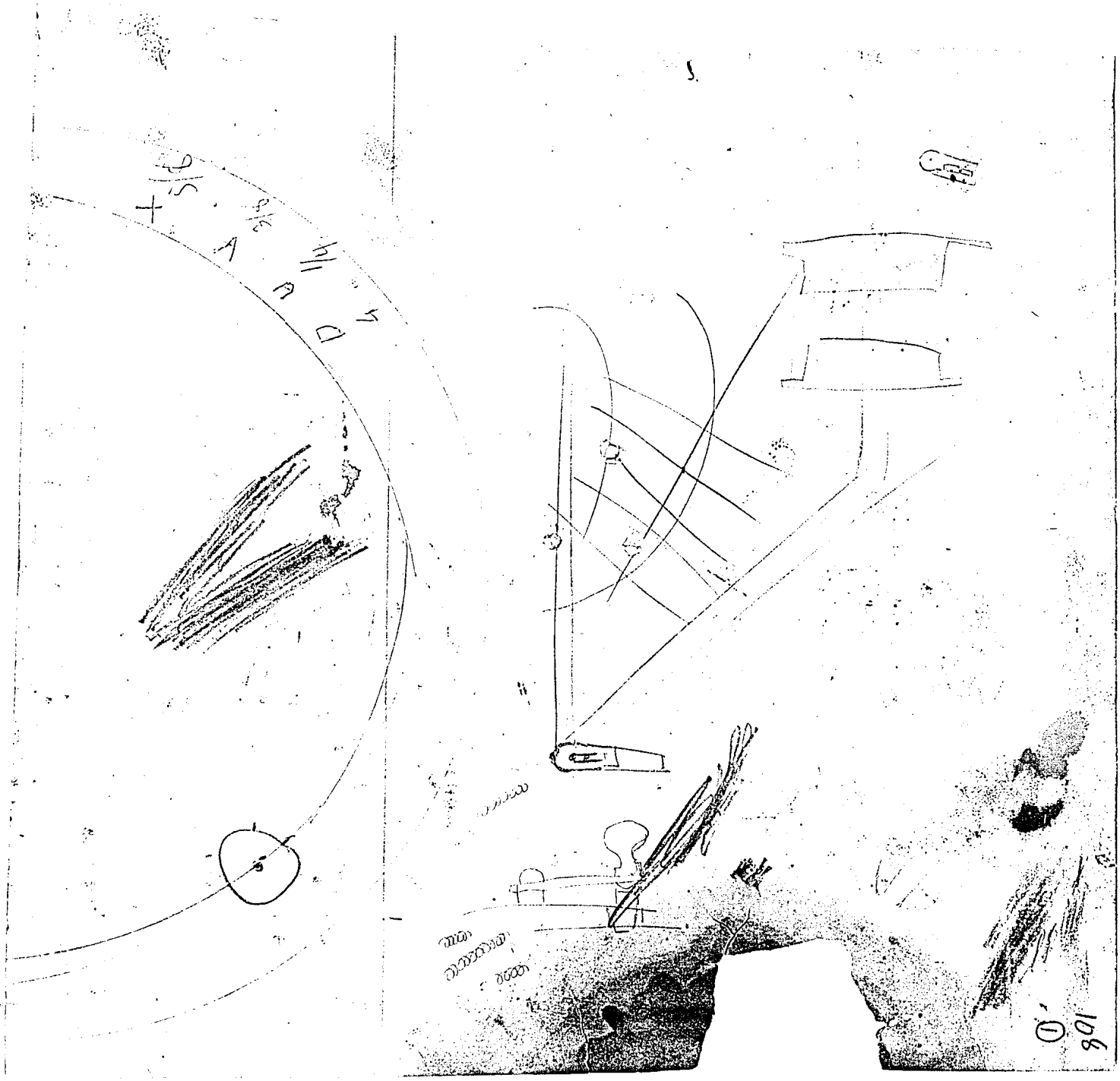



Make thickness of face of cloth 1/8
" diameter of apertures 10 in
" inside gear so that root of Teeth covers opening 1/32 in
" Gear of wrought iron
" circular and cover of thin steel
" Shaft or drum bar gear
" Shaft for drum
" material
preserve the relative proportions of all the working parts
Bring whole thing within
108 (2)

108

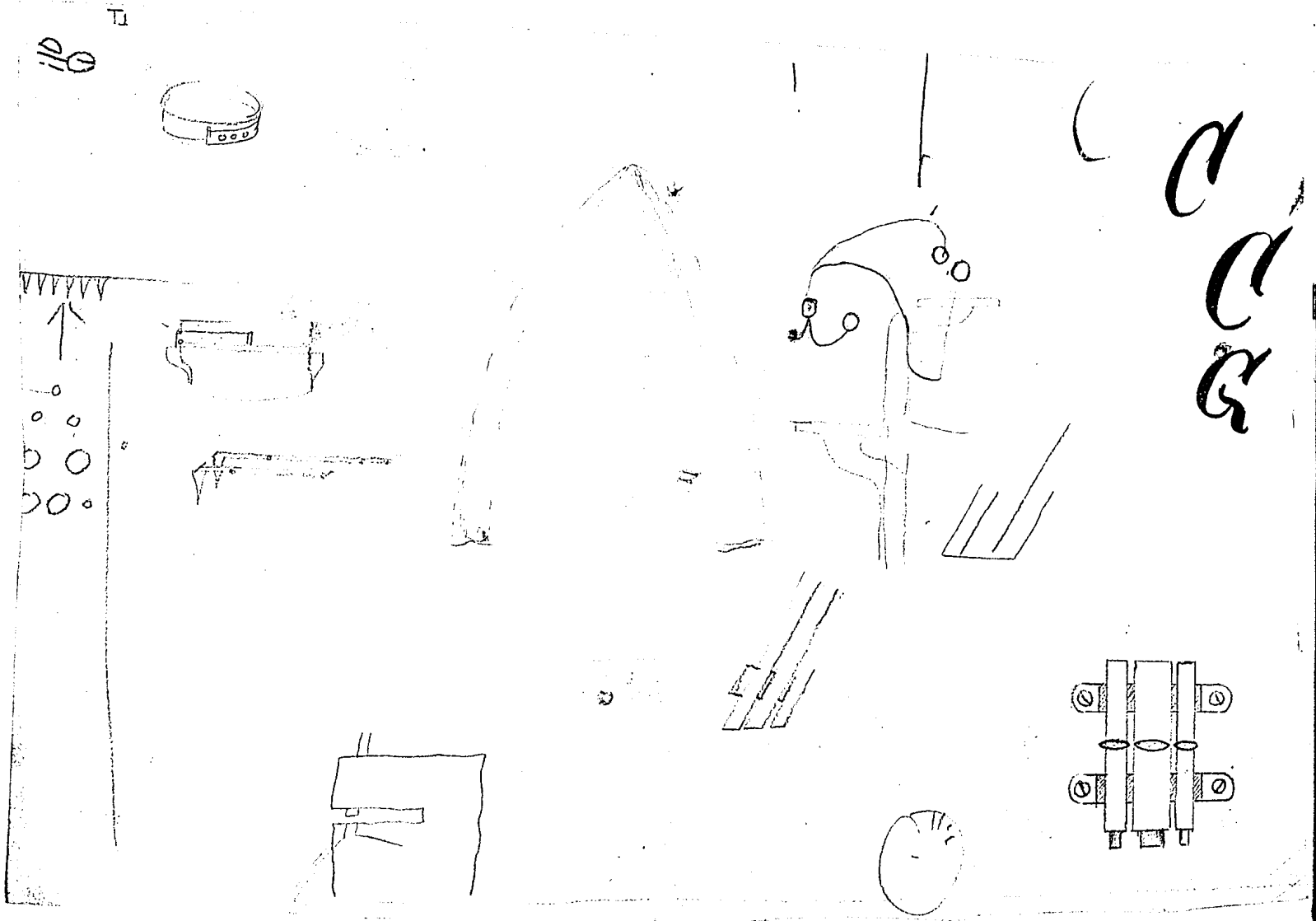


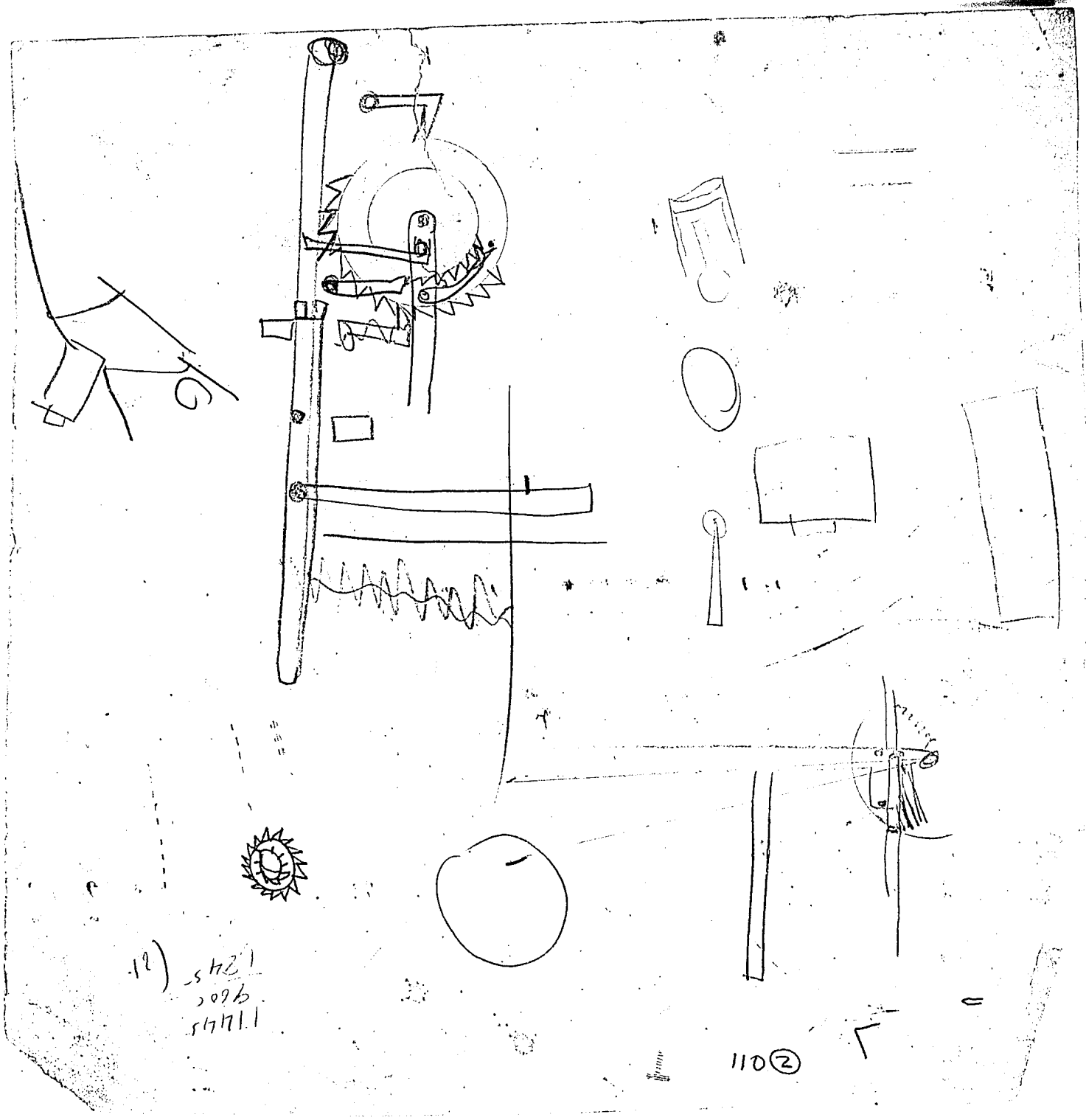

Case

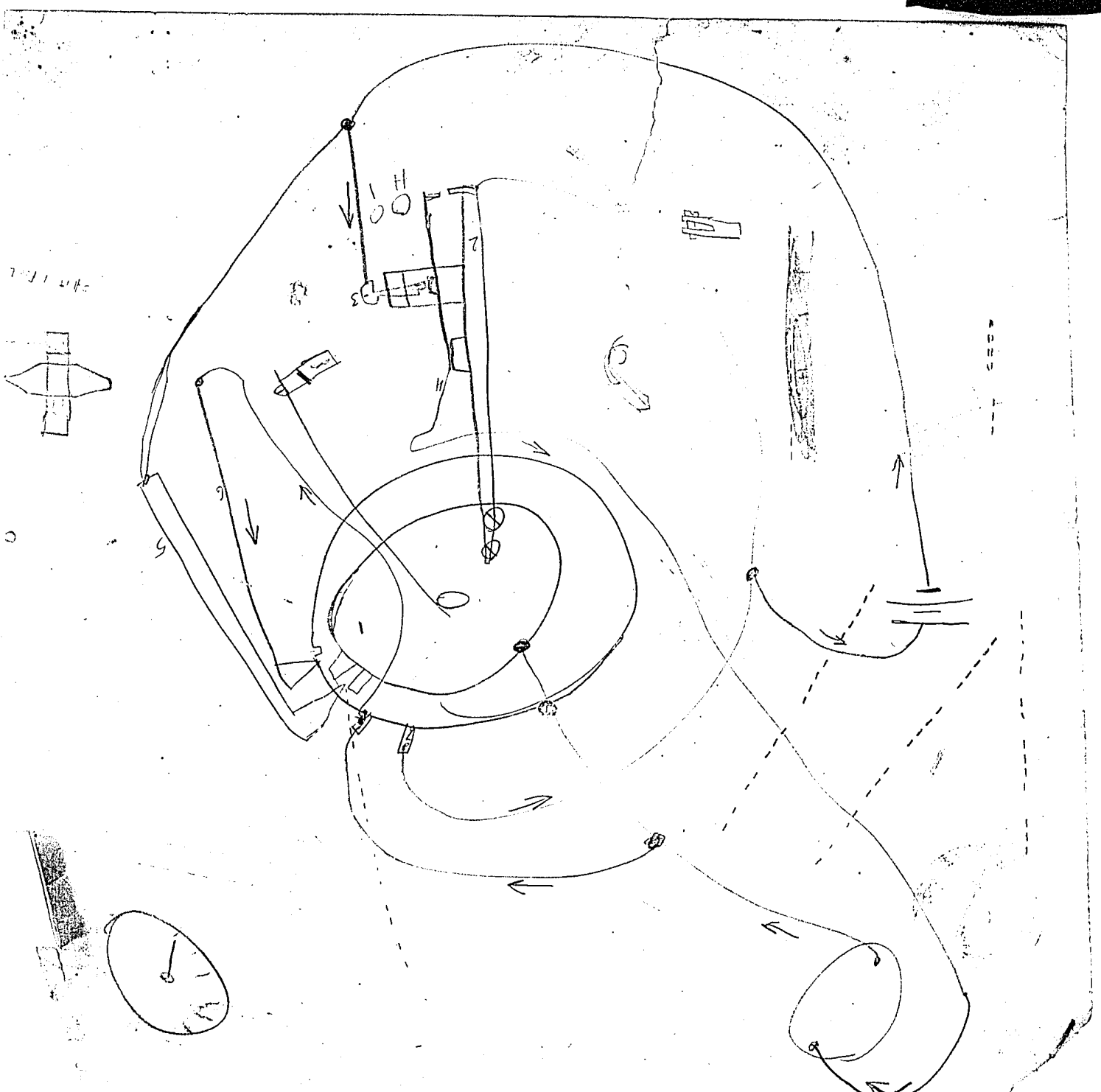


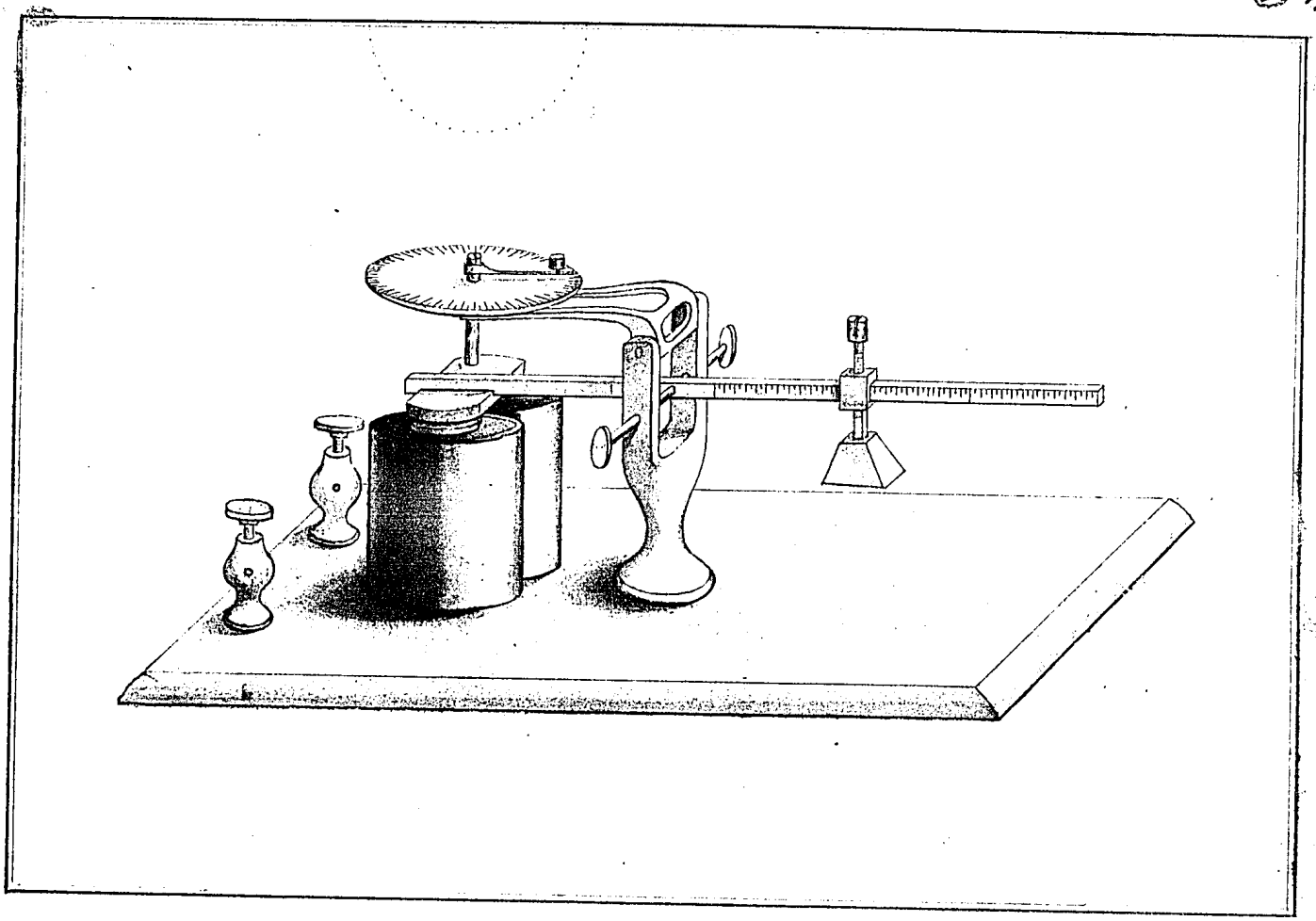
108

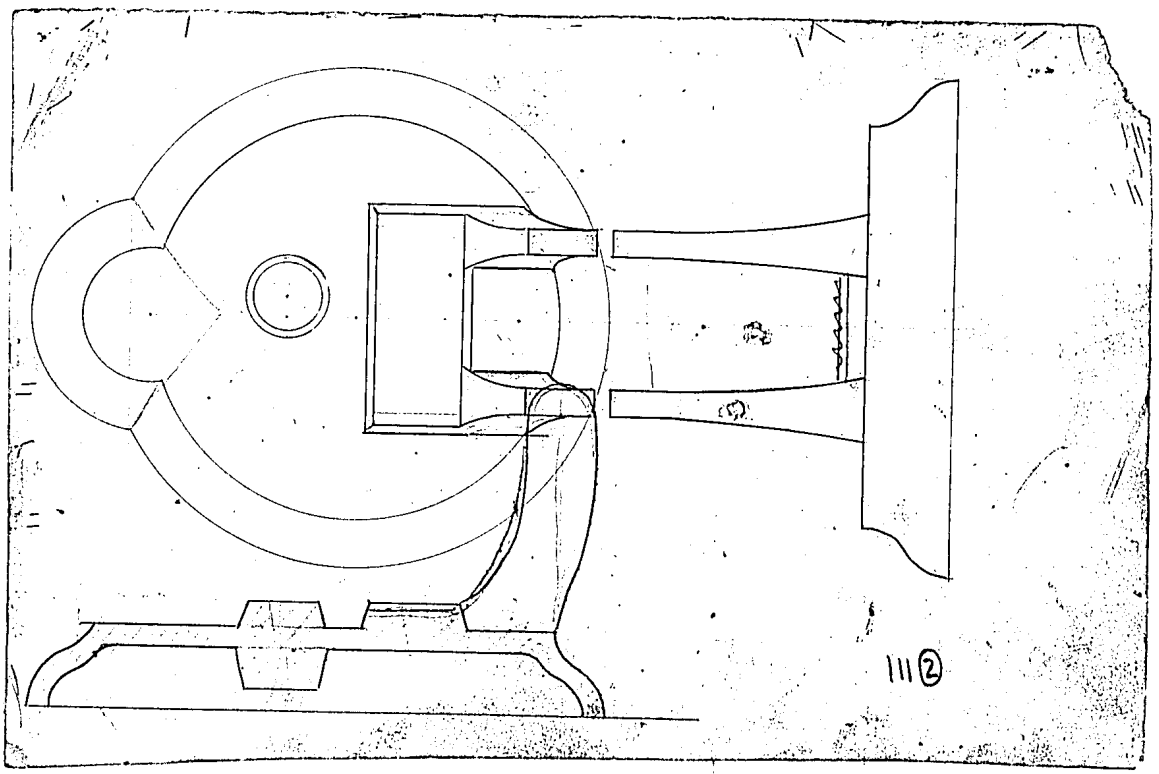
109




12) sh21
yoo
small
1102

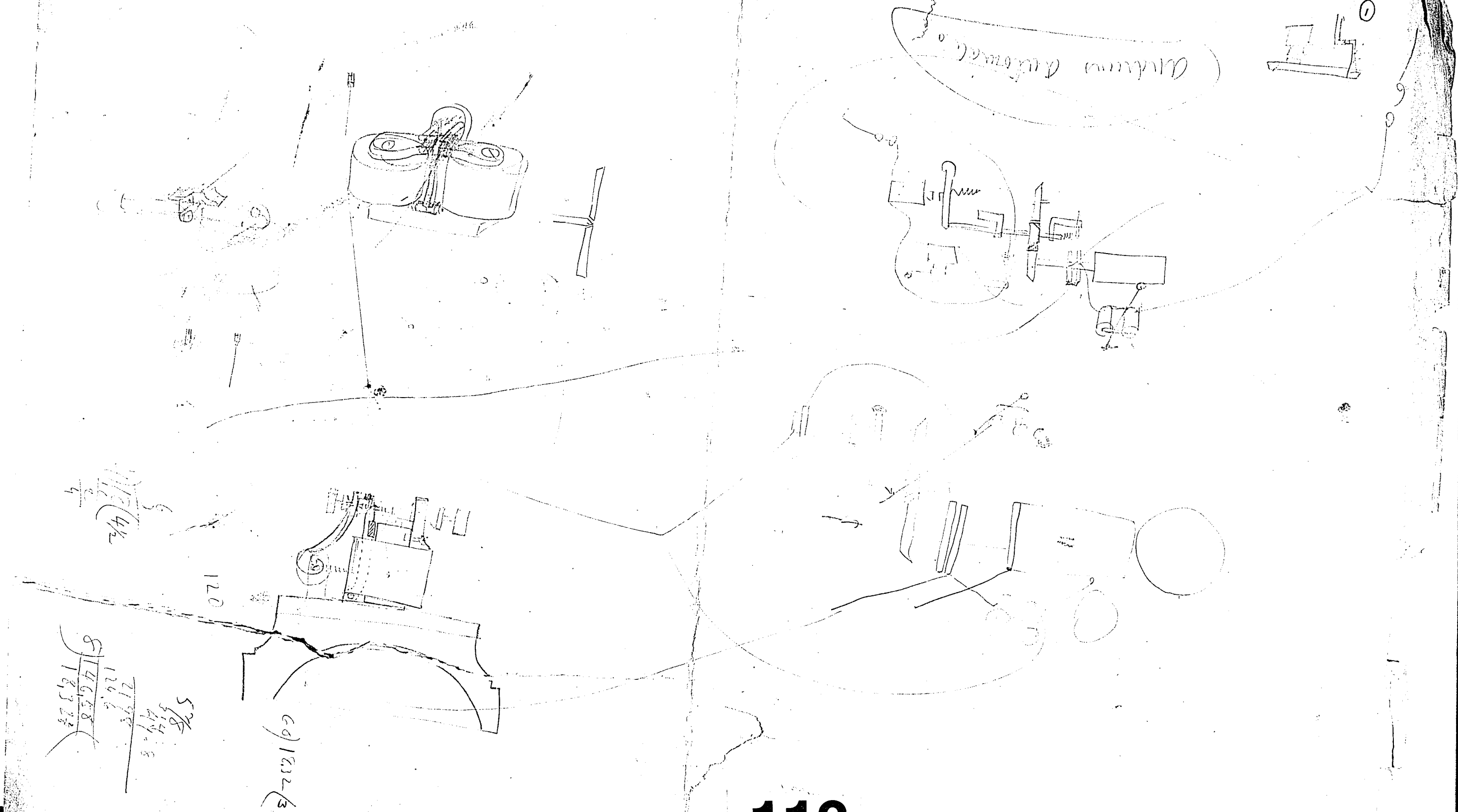




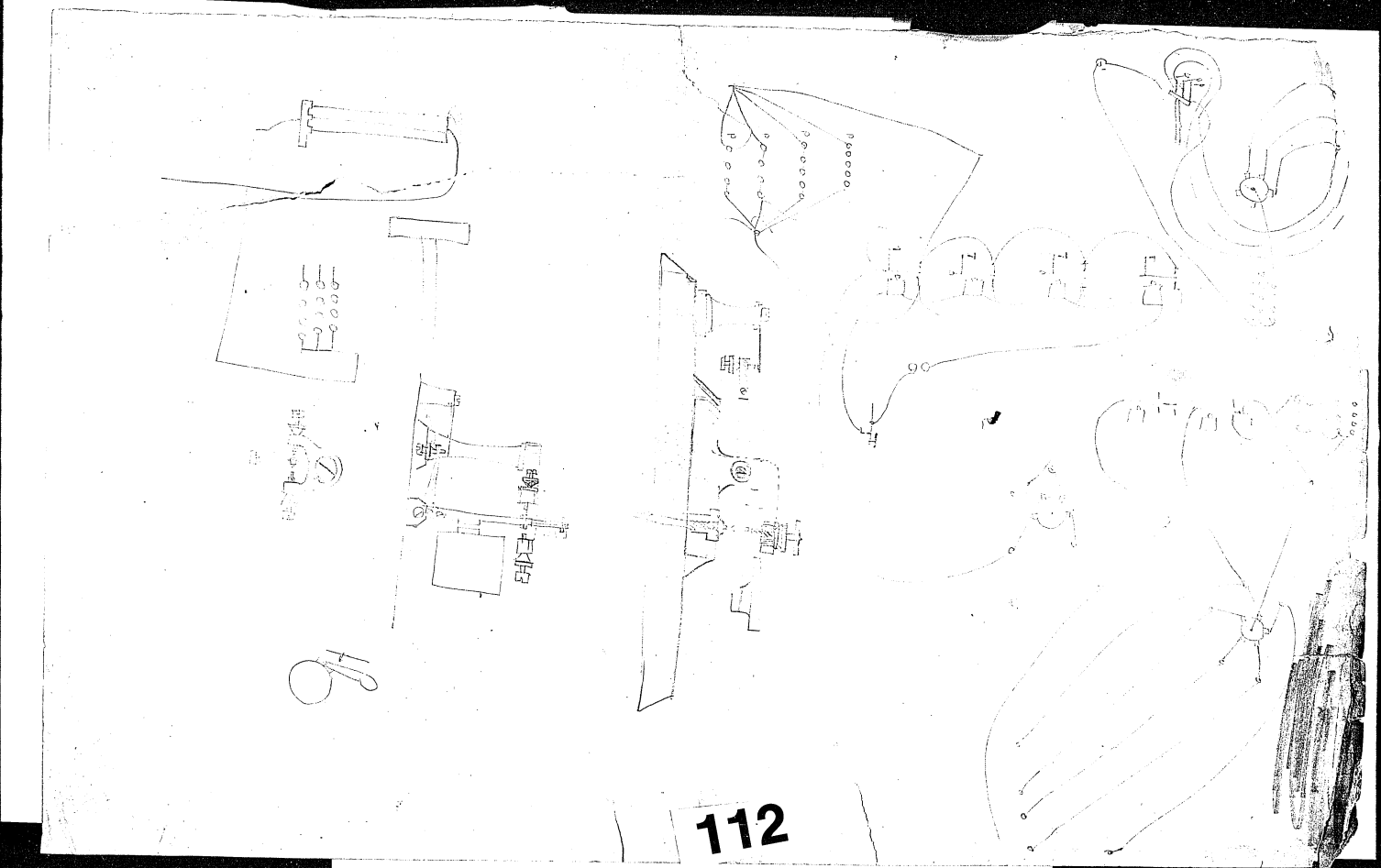


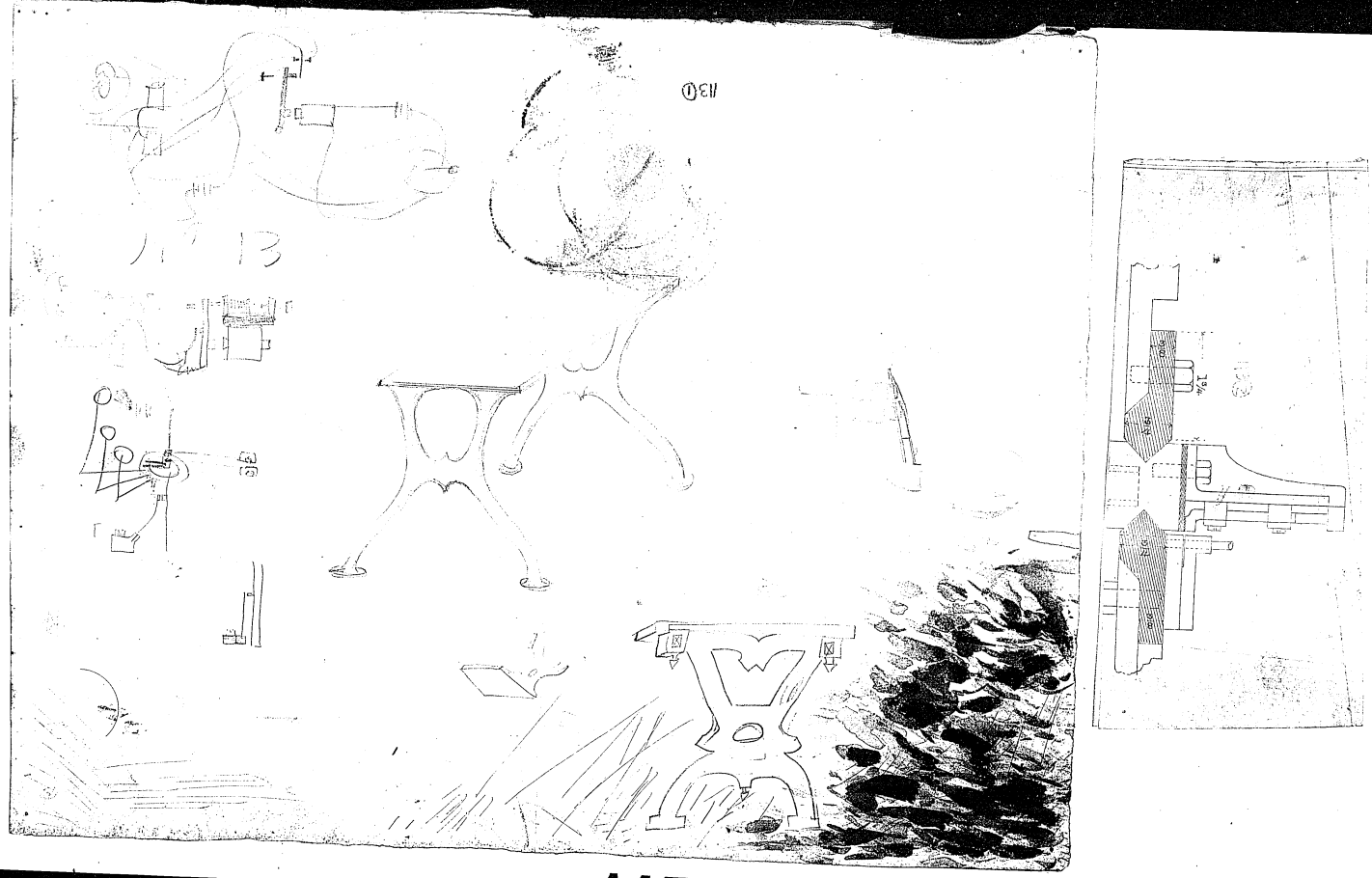
111

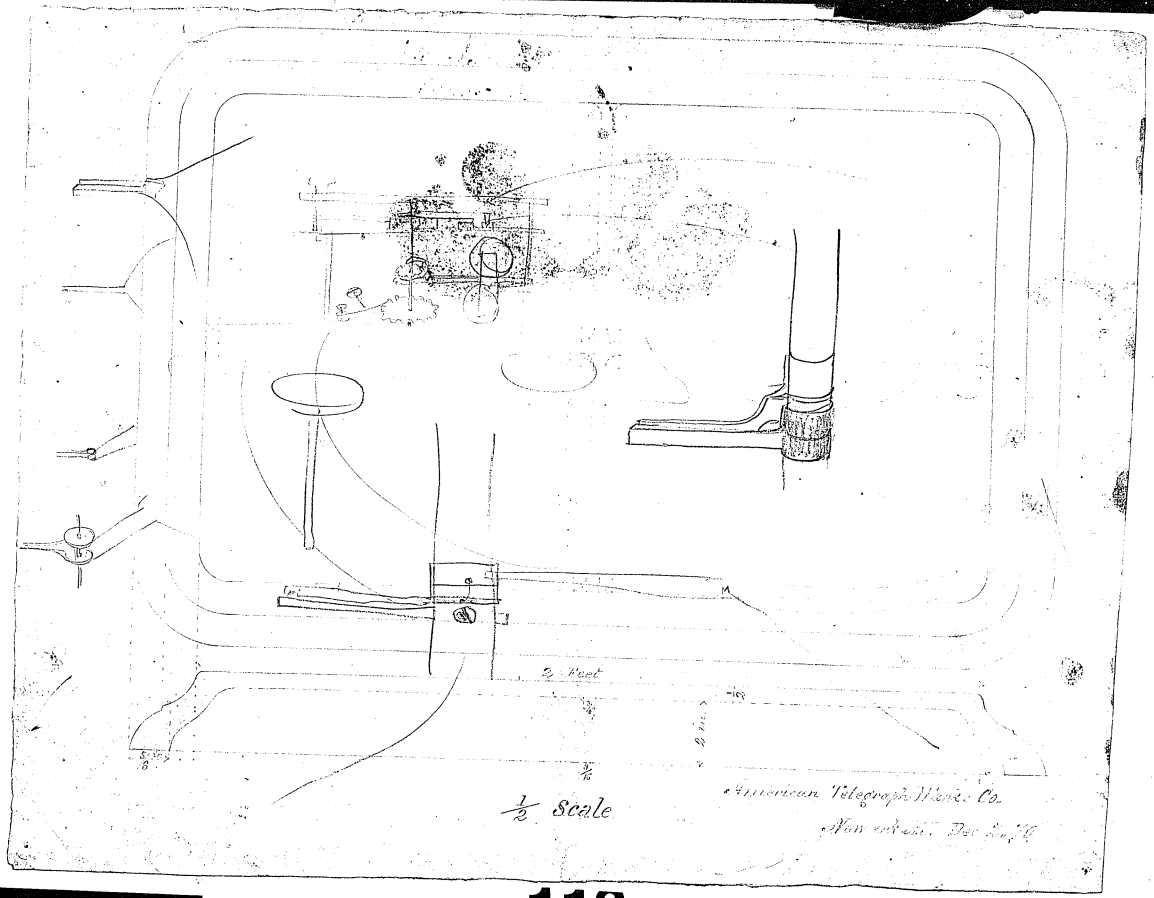
112
(1)

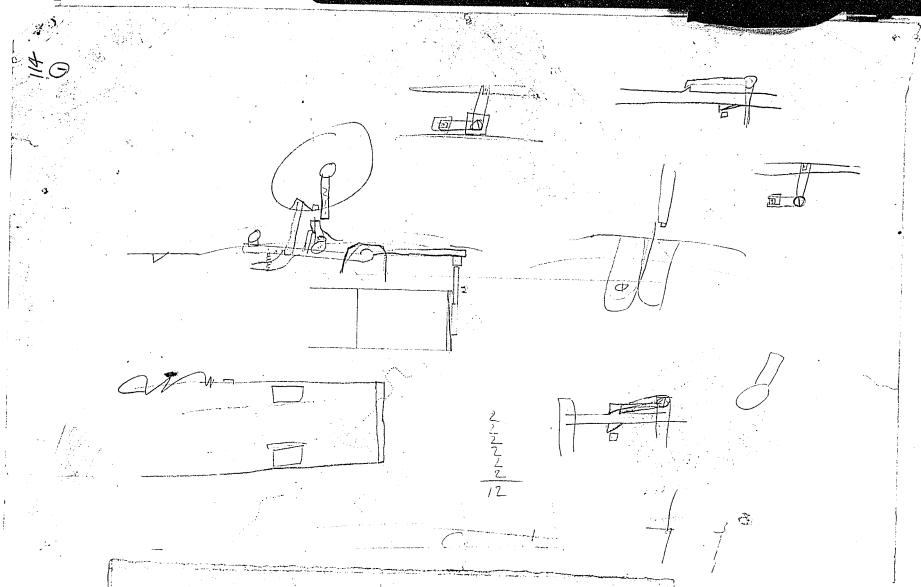


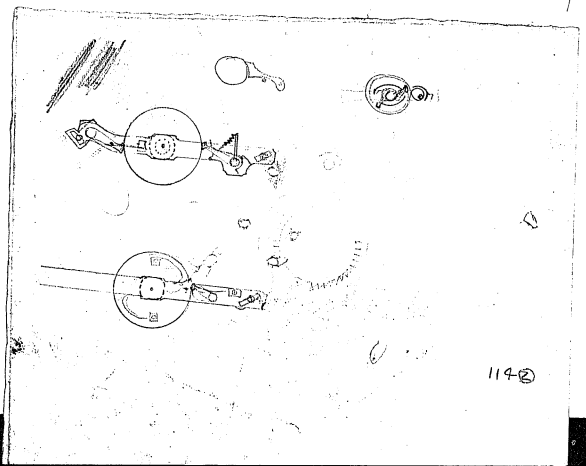
112



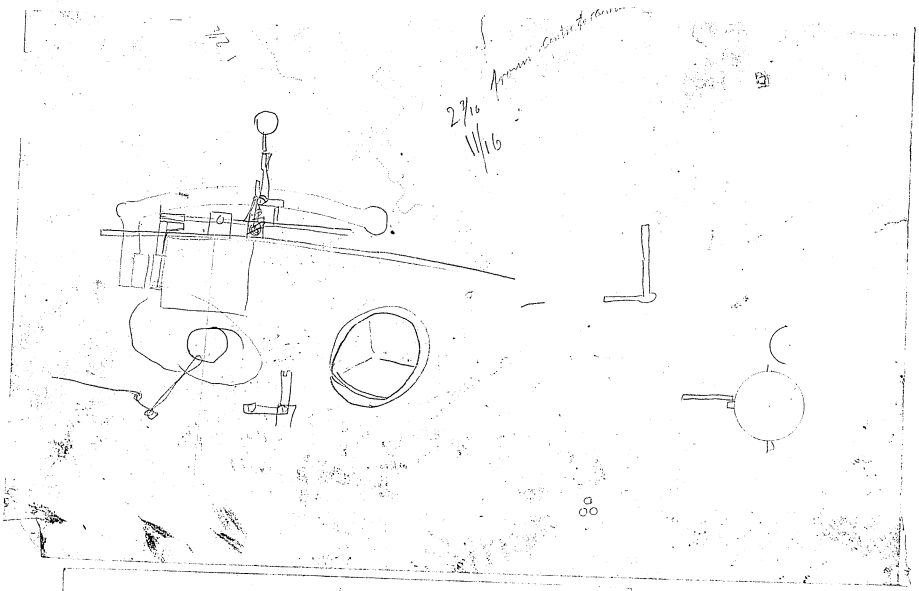



½ Scale
American Telegraph Works Co.





114



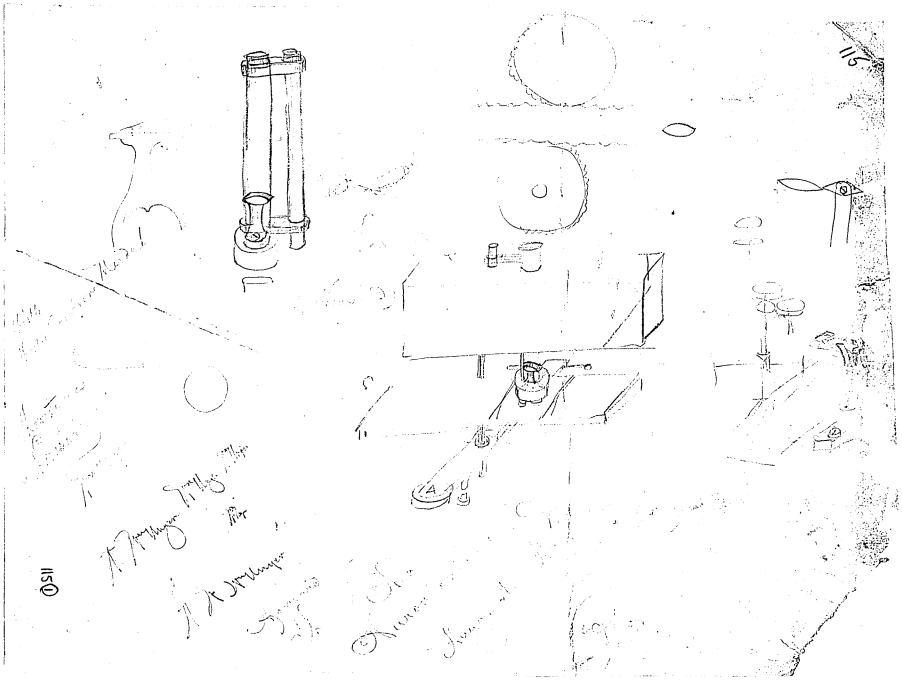
N J. C 2 — Caulton 2 Rdq 2 St.P. 3
W M 2 AS 1 Oth 2
Man 3 SHC 2
P M 2 CdP 2
K H C 3 NW 1
Heid 2 PD 3
Bm 3

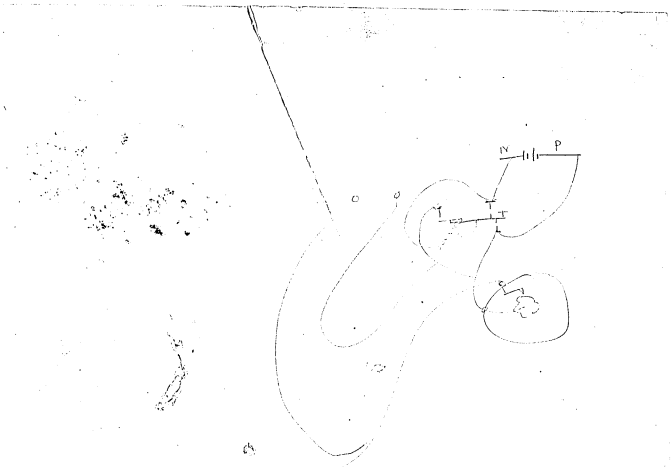
a a b c d e f g h i j k l m n o p q r s t u v w x y z. #

#. W P M M u N Y R B C 90

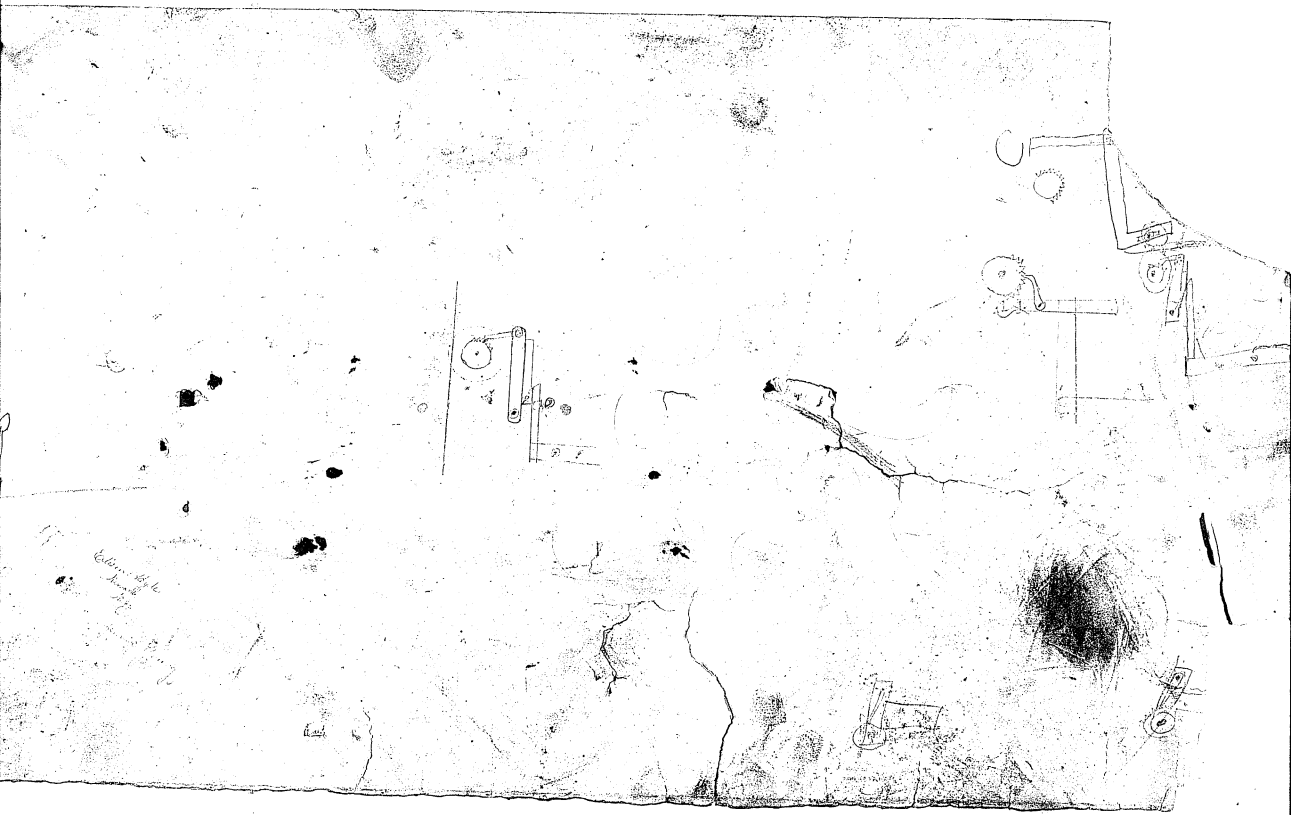
25

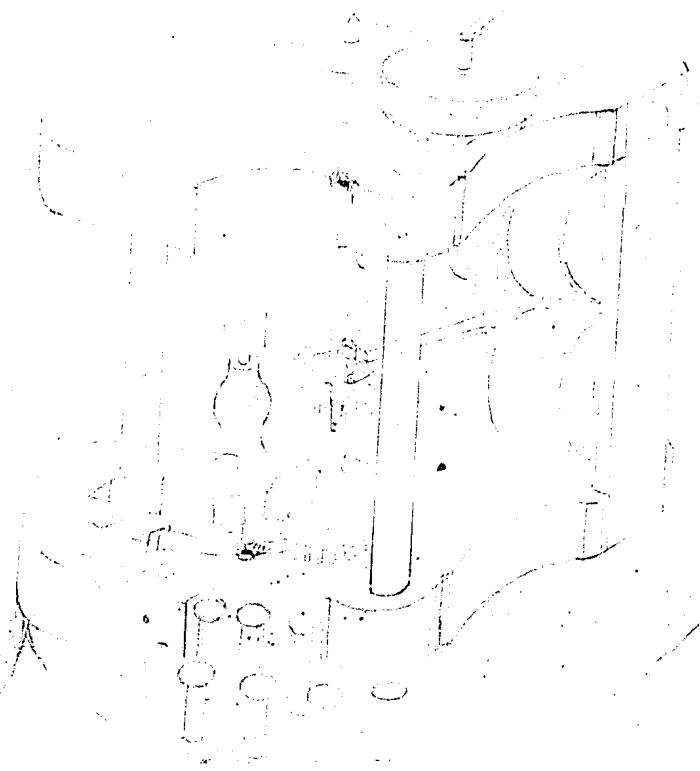
114



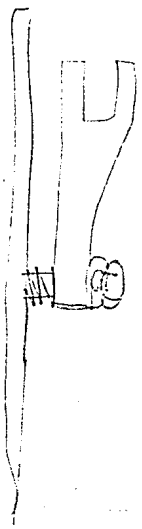

N
P

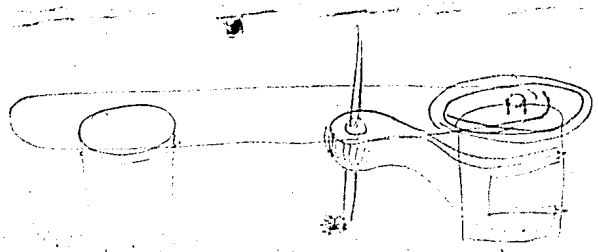
116





Compliments of

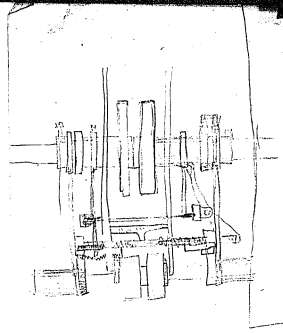


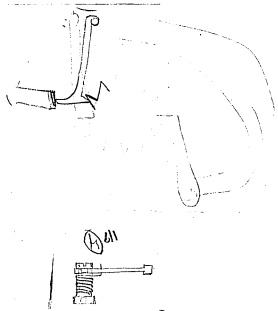


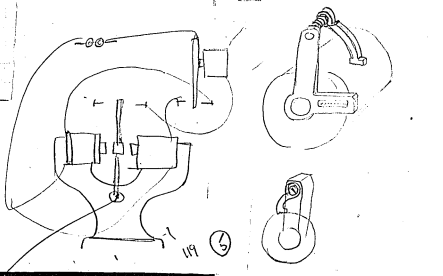
Transmitter. T.A. Edison

1877

Jan	13	20%	Cast iron	123	
"	14	1%	" Brass	57	
"	-	Work to Date			1½ Days
"	16	Schraver			10 Hours
"	17	"			10 "
"	-	Miller			6 "
"	-	Peck			4 "
"	-	"			5 "
"	-	Schraver			8 "
"	-	Peck			7 "
"	-	Schraver			10 "
"	-	"			10 "
"	-	Peck			10 "
"	-	"			10 "
"	-	Schraver			10 "
"	23	Peck			10 "
"	24	"			4½ "
"	25	Schraver			10
"	26	"			10
"	27	"			10
"	29	"			10
"	30	"			10
"	31	"			10
Feb	1	"			14
"	2	"			14
"	3	"			14
"	4	"			10
"	6	"			16
"	7	"			10
"	8	"	4 [illegible] 320		4
"	9	"	20375		2
"	10	"	letters for wiring 200		10
			20575		13
"	11	"	320		10
"	13	"	20895		11
"	14	"			0 7½
					59
					20175







119

119 ①

X

2 Perforating Machine

1871

Jan	11	work To Date		30 6/10	Days
"	"	5 Lb Brass	190		
	"	Stubb Steel wire	200		
	"	11 Cast Iron	66		
	"	1 Finish Base	75		
	"	" Screws	50		
	"	1 3/4 Lb Brass Casting	67		
	"	2 " Steel	66		
			714		
"	16	Off		10	Hours
"	"	Hildenbrand		10	"
"	17	"		14	"
"	4	Off Case		2	"
"	18	Hildenbrand		17	"
"		Helme		7	"
"	19	[illegible]		13	"
"	"	[illegible]		1	"
"	"	[illegible]		6	"
"	20	"		11	"
"	20	Hildenbrand		13	"
"	"	Helme		14	"
"	21	Hildenbrand		10	
"	23	"		7	"
				143	
	2			300	
				443	
				32 1/2	
				886	
				1329	
				221	
				14397	
				714	
				15101	

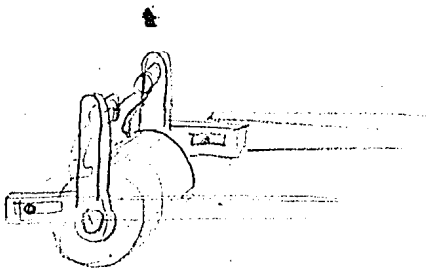
Here I Stood [illegible] Rope Rimmed

Holes in the [illegible]

[illegible] Hundred [illegible]

[illegible] Hundred [illegible] of Copper [illegible]

[illegible] Iron [illegible] Thick [illegible]



119

16 American Telegraph Works

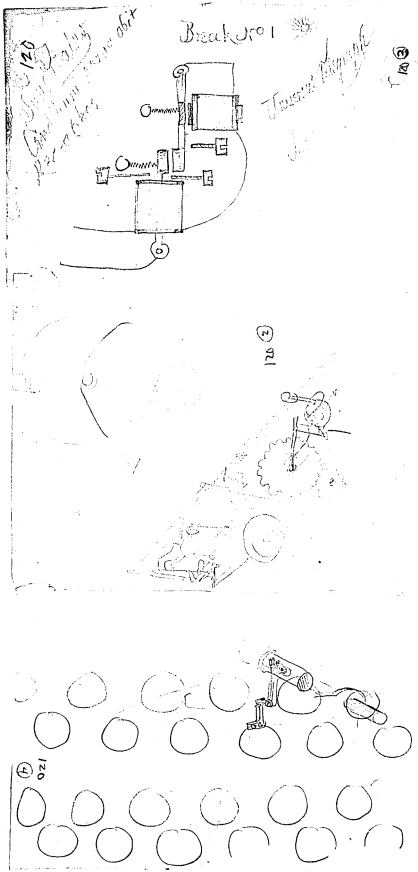
1871

Jan.	23	"	work on Perforator	176 11
		"	Spring wire	30
		"	Rubber Magnet Heads	3 25
Feb	1		Rubber Twine	30
"	1	Brass Pattern		5 00
"	2	Transmitter for testing		5 00
"	2	Adjusting four Printers		8 50
"	3	1 Small Electromatic Machine		25 39
"	"	Adjusting Printers		39 00
"	"	work on Large Perforator		159 75
				422 80

Billed

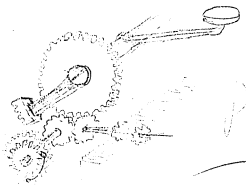
"	6	Adjusting Printer		50
"	6	1 Letter wheel	16	00
"	7	Pattern for Unison Post		75
"	"	1 Stick Hard Rubber	1	75
"	"	Repairing little Automatic	1	75
"	8	Fixing Type wheel		25
"	"	32 Shell Clicks		50
"	9	3/4 Iron wire.	12	28
"	10	Face Mills and fixtures	50	00
"	11	Adjusting 5 Printers	21	25
"	11	Fitting Escapements for Universal Printer	12	00
			117	03
		Charged	12	00
			105	03

		[illegible] Cable		75
"	18	Spring wire		15
"	21	7 Hours Adjusting Printers	7	50
"	"	3 " "	1	50
"	23	Shaw 10 Hours Agust	5	00
"	23	Davis 9 " "	4	50
"	24	" 9 1/2 "	4	75
"	"	Shaw 10 "	5	00
"	25	" 10 Davis 10	10	00
"	"	[illegible]	10	00



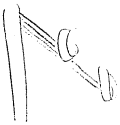
altering automatic Immanuelle for Gold & Stock

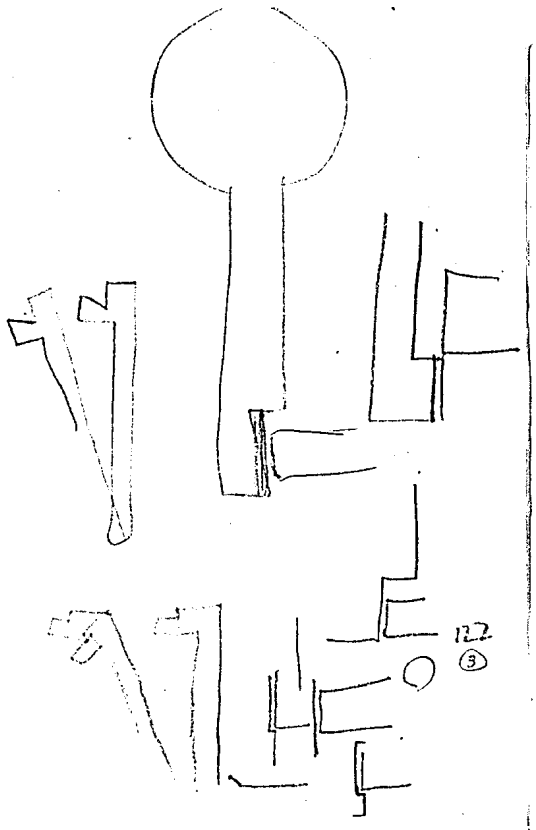
1871					
Sept	3	Ott	10 Hours		5 00
"	3	"	4	" night	2 00
"	4	"	10	"	5 00
"	6	"	10	"	5 00
"	7	"	10	"	5 00
"	8	"	14		7 00
"	"	Schrauer	3		1 50
"	9	"	8		4 00
"	9	Ott	14		7 00
"	10	"	14		7 00
"	11	"	9		4 50
"	13	"	4½		2 50
"	14	Schrauer	3		1 50
"	15	"	14		7 00
"	16	"	14		7 00
"	17	"	14		7 00
"	18	"	14		7 00
"	20	"	5		2 50
"	21	"	13		6 50
"	22	"	13		6 50
			5		2 50
					103 00
"		Extra			2 00
"		Commission			2 70
					107 70
"	24	Schrauer	10 Hours		5 00
			Total		112 70

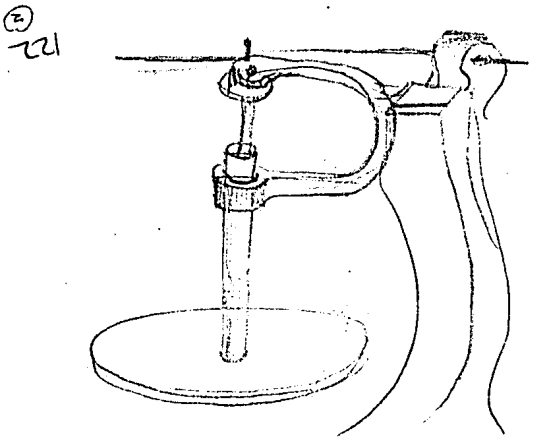


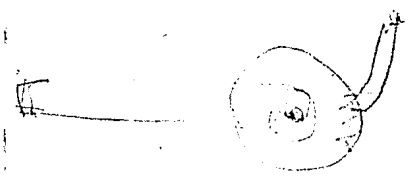
Private.

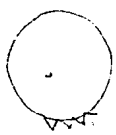
121





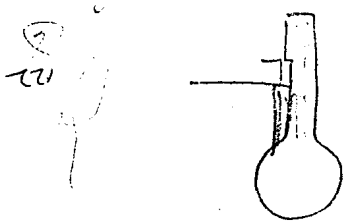


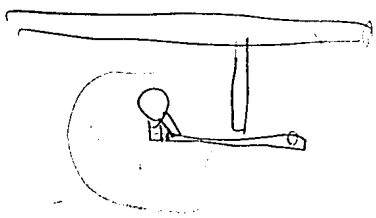


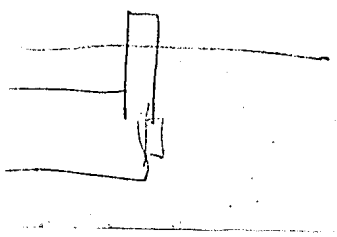


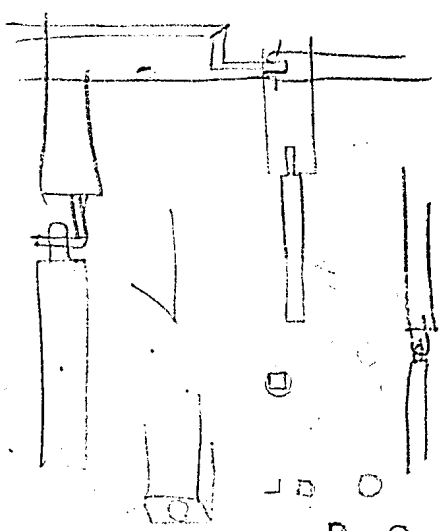
122
①

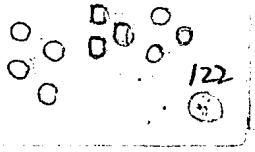
Sm Scott

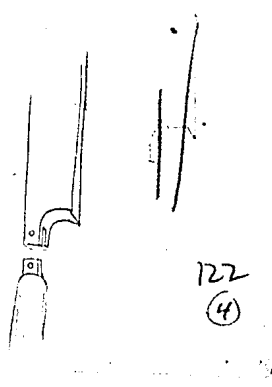


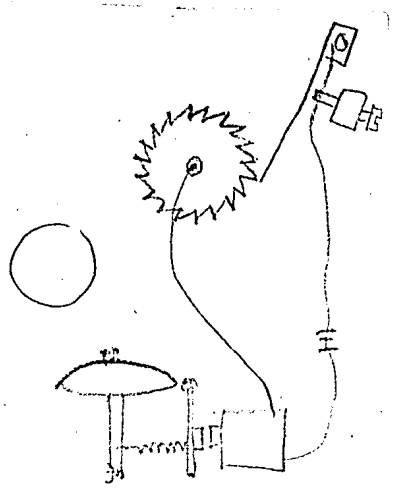












123 ①

123 ②

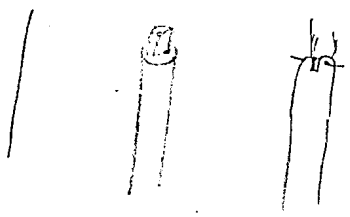
123 ③

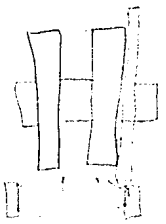
123 ④

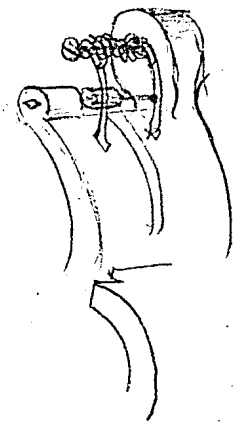
123 ⑤

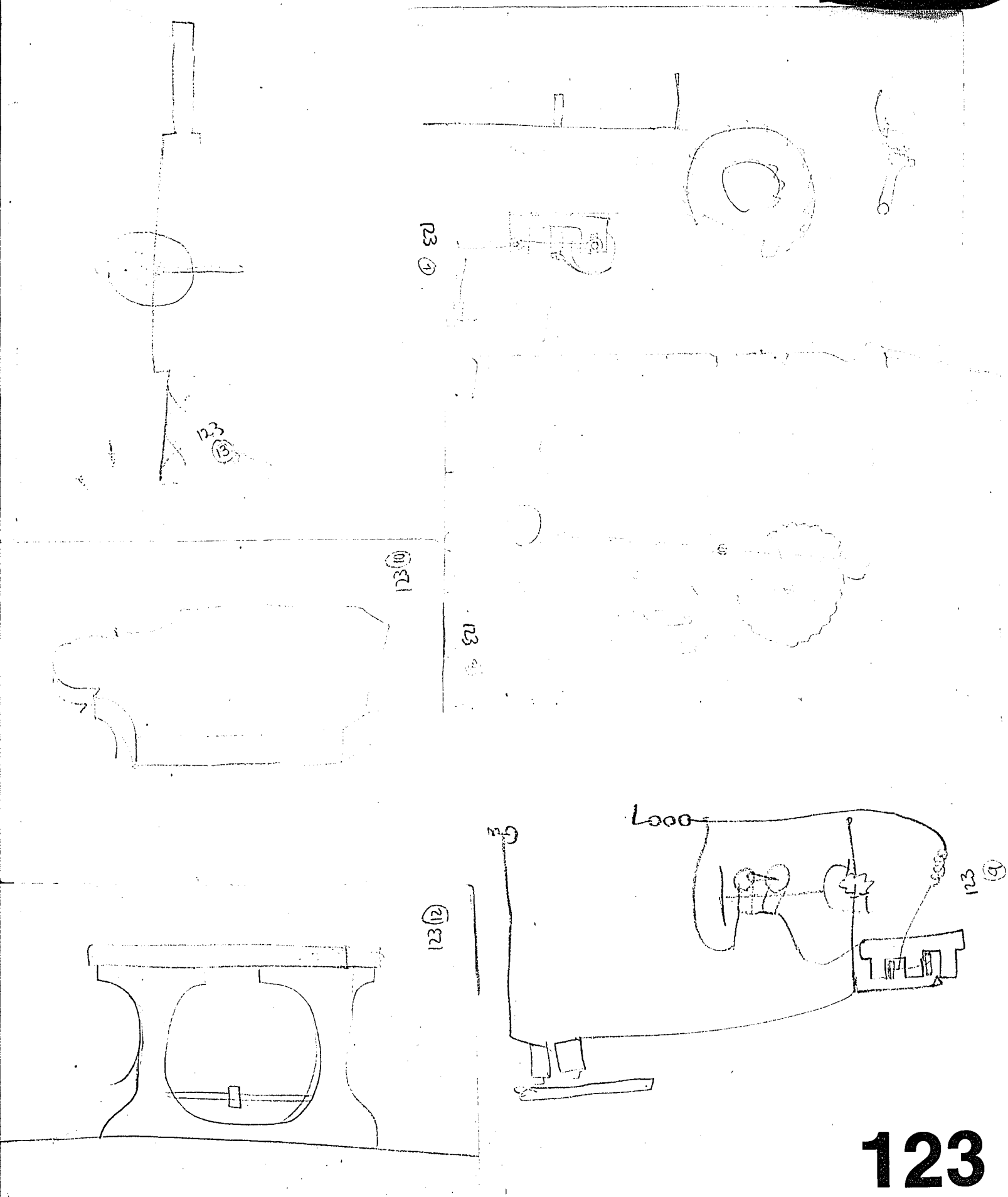
123 ⑥

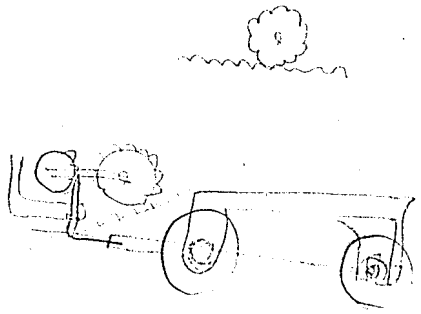
123

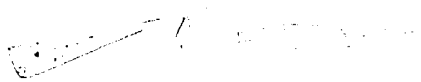


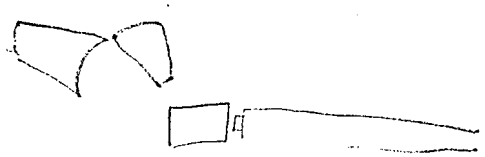


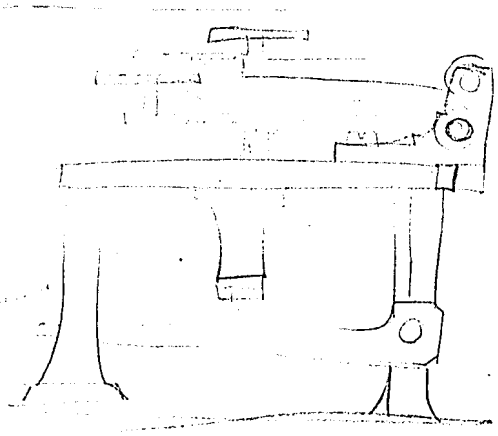


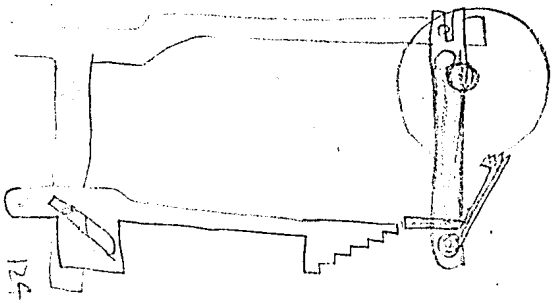

123
123
123
123
123
123
Loop

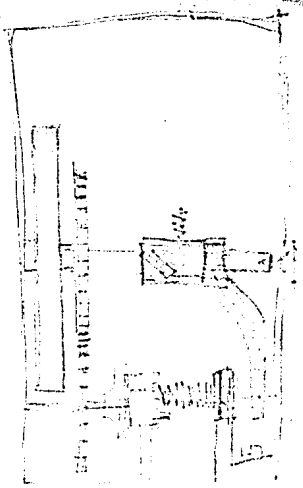


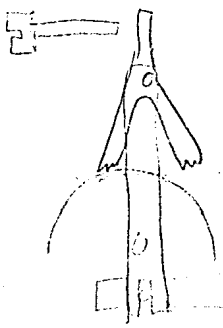


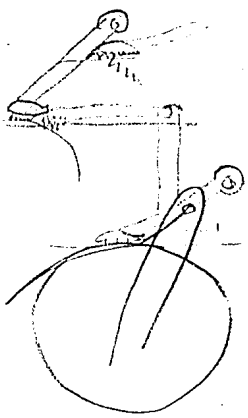


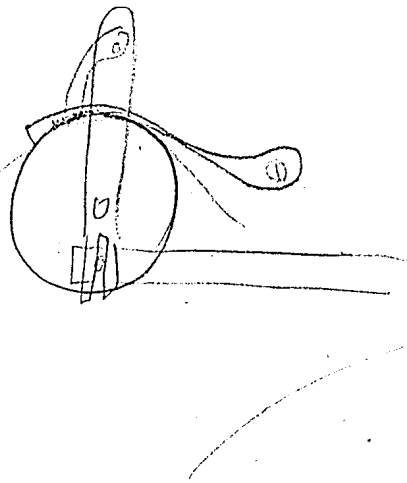


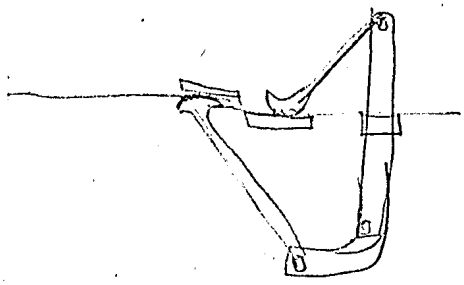


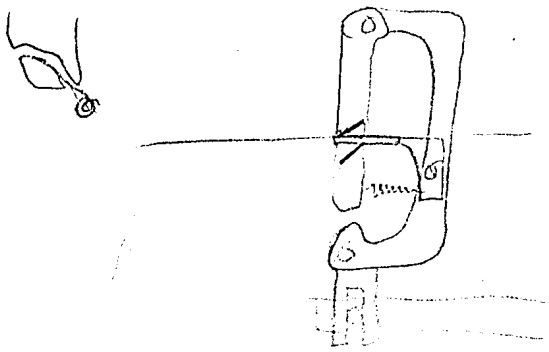


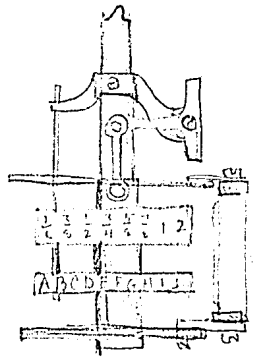


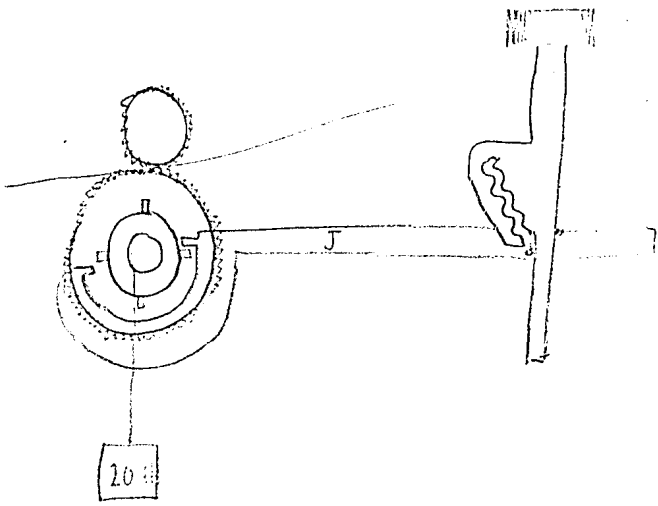


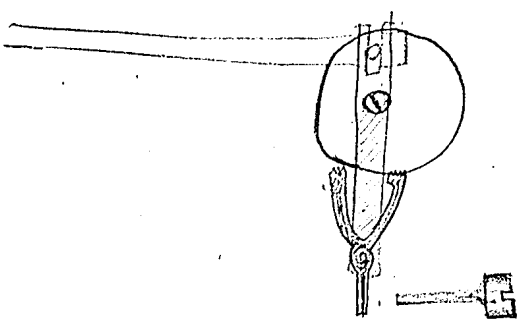


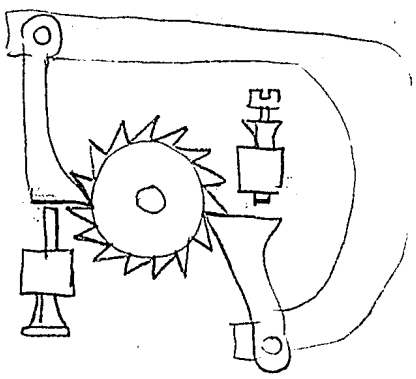






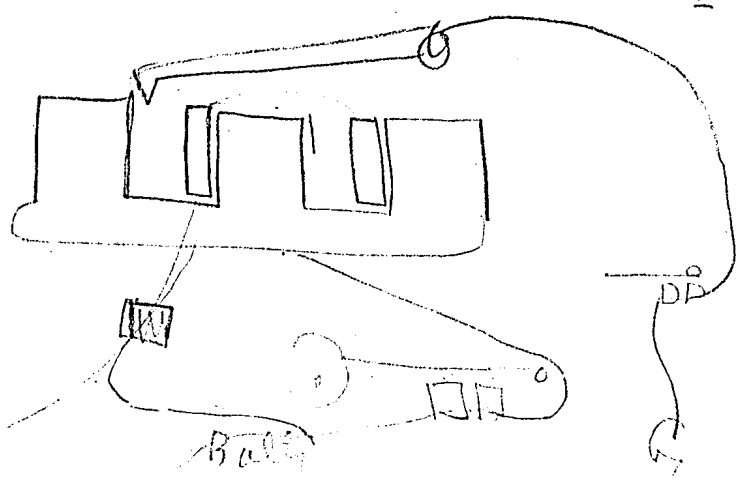

J
20



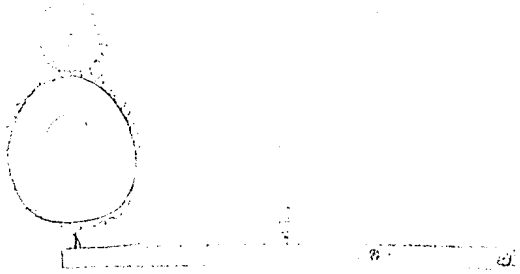


124 ⑥

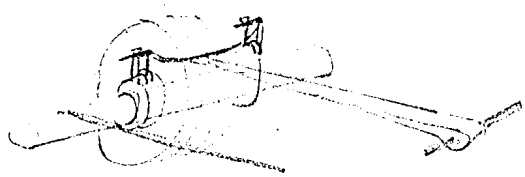
124 ①

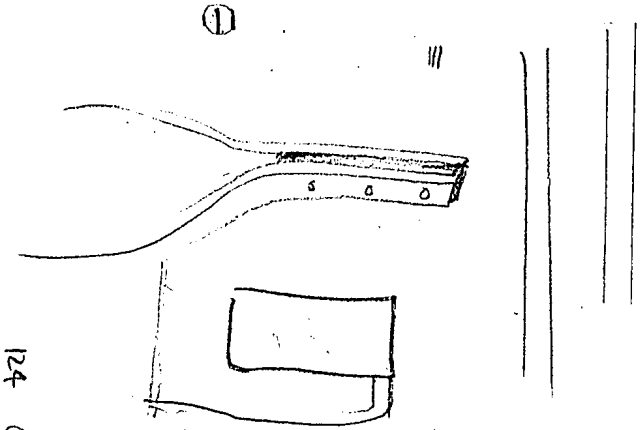


124 ⑤



124 ②

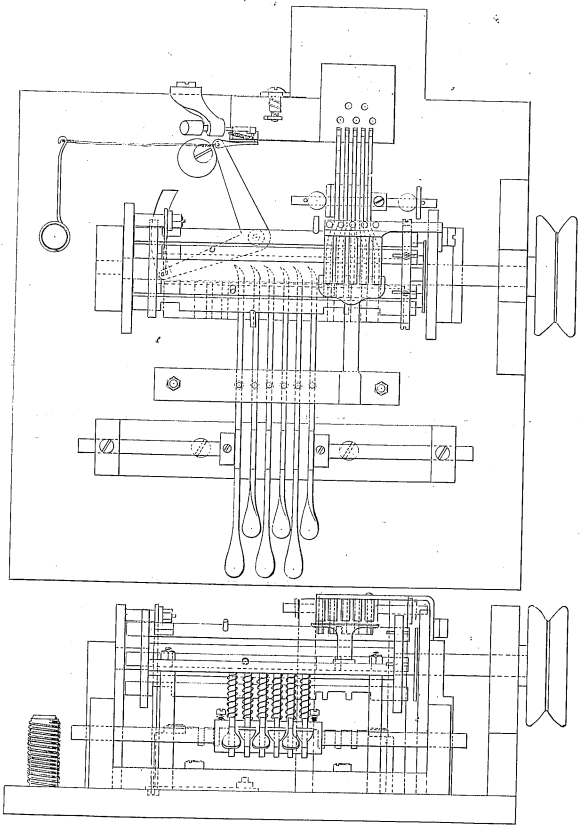


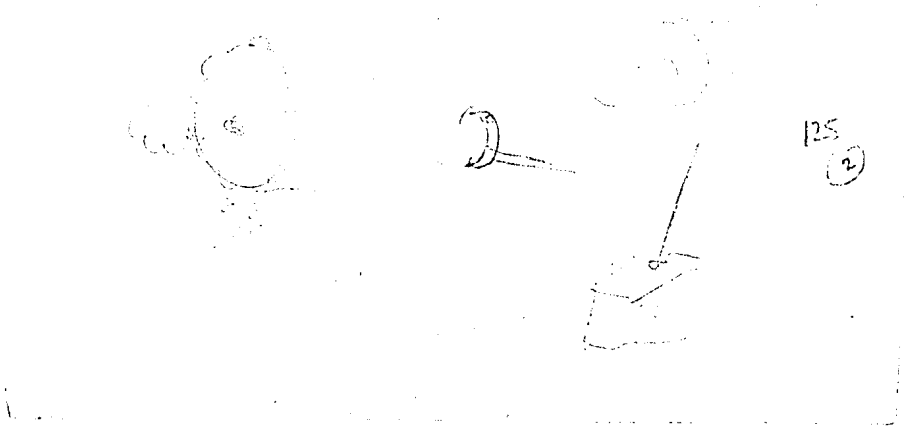
① 

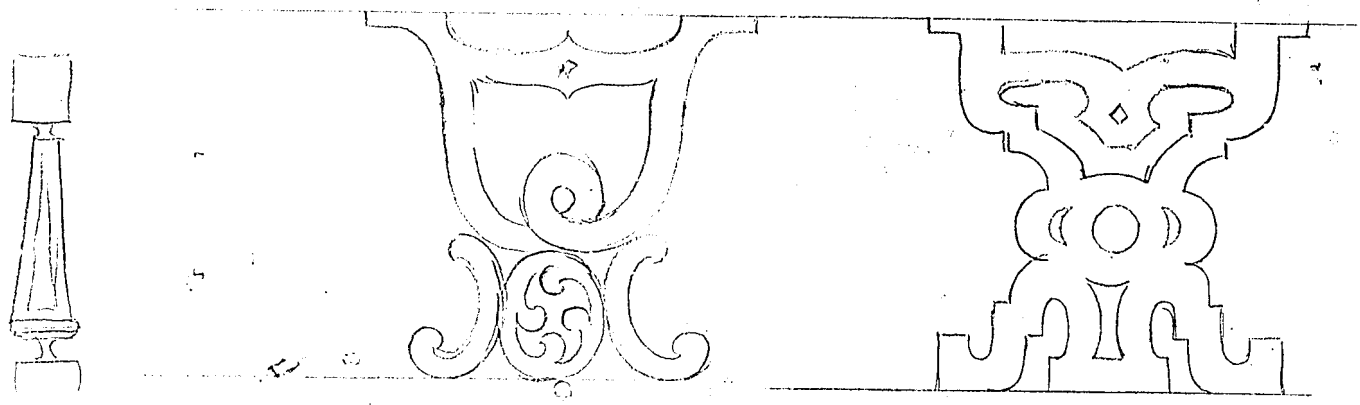
124 ④

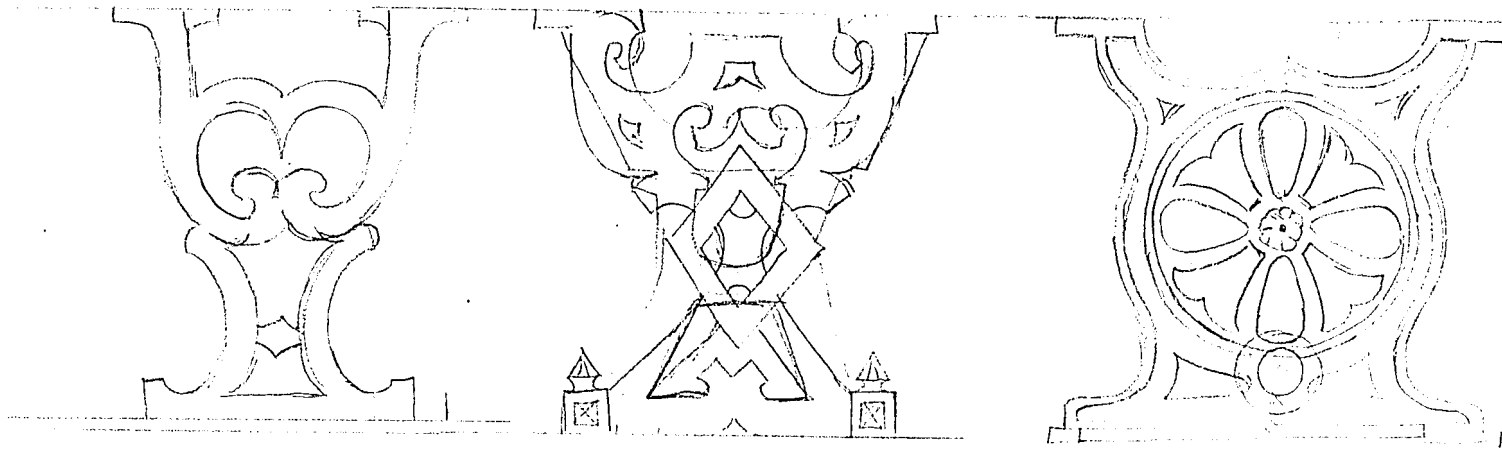
124

PERFORATING MACHINE for TELEGRAPHS




125
(2)



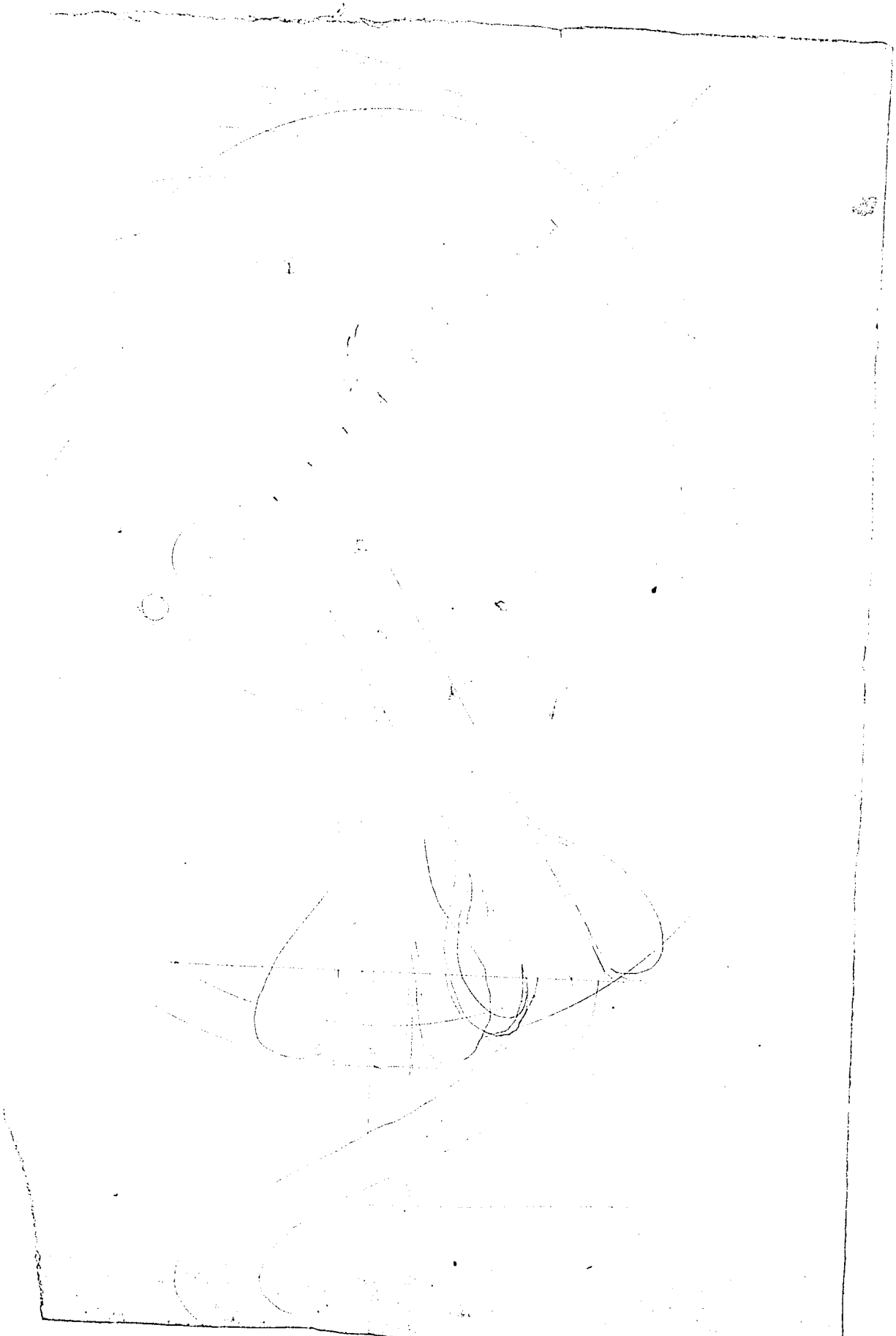


126 ①

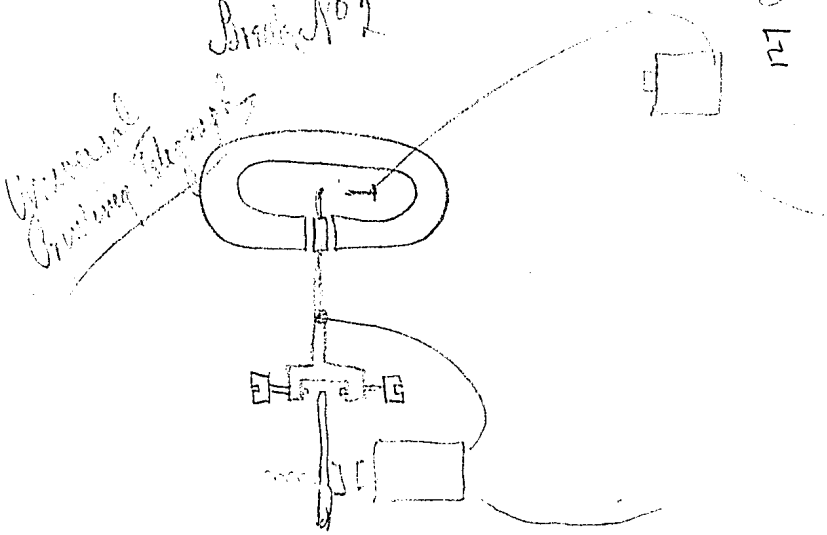
126 ③

126 ②

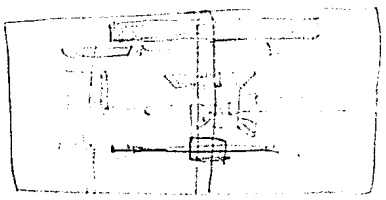
126



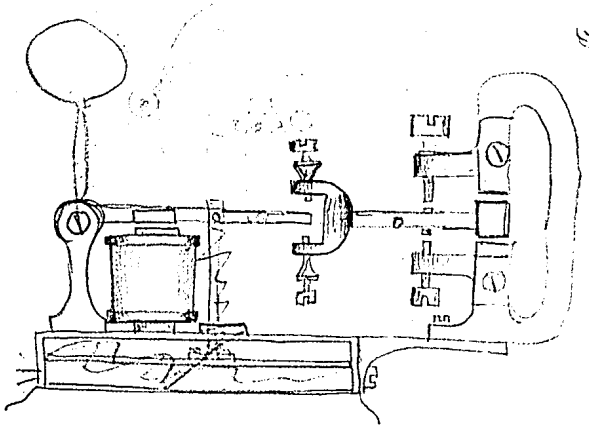
Bracket No 2



127 (5)



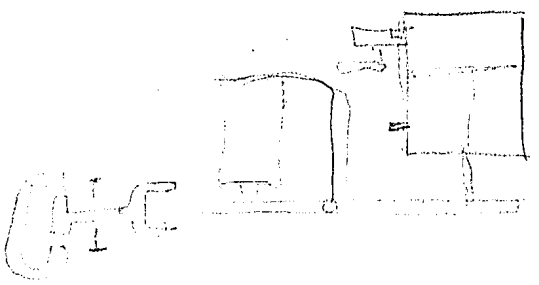
127



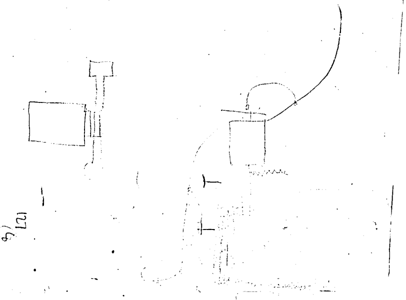
127 (6)

127 (1)

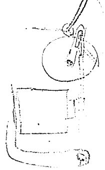
127

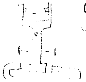


127

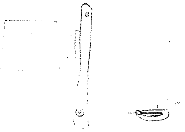


127 (9)



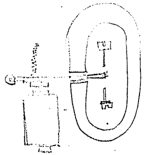


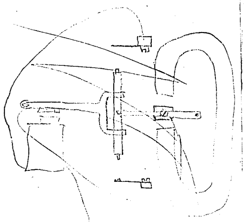
127 (11)



127 (9)

127 (12)

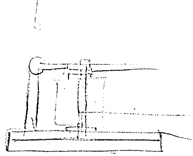




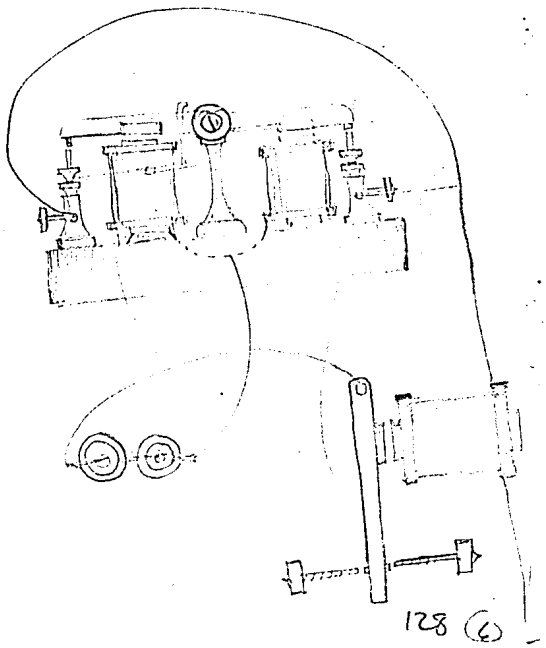
127

127 (3)

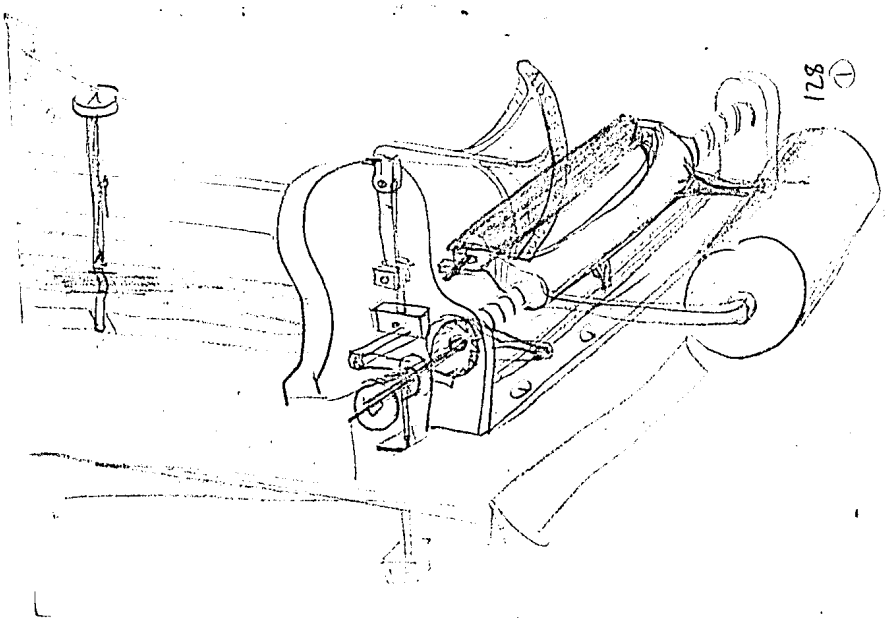
127 (9)



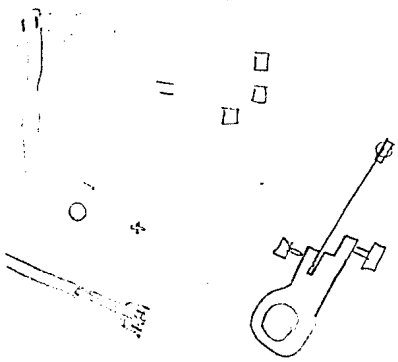
Breakaros Universal Printer

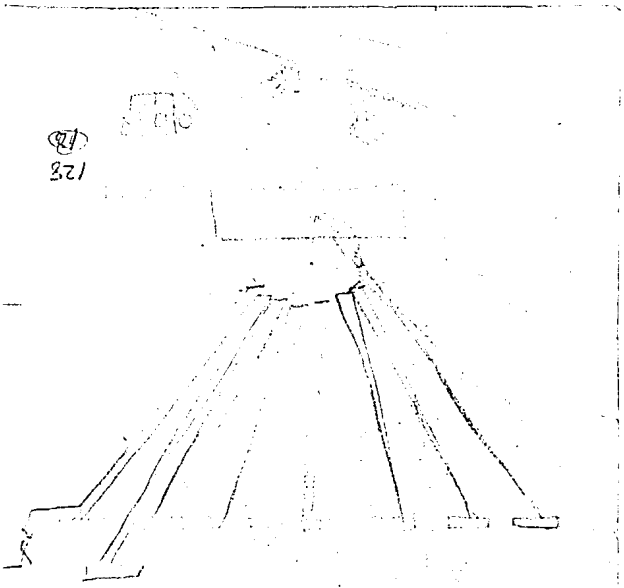


128 (7)



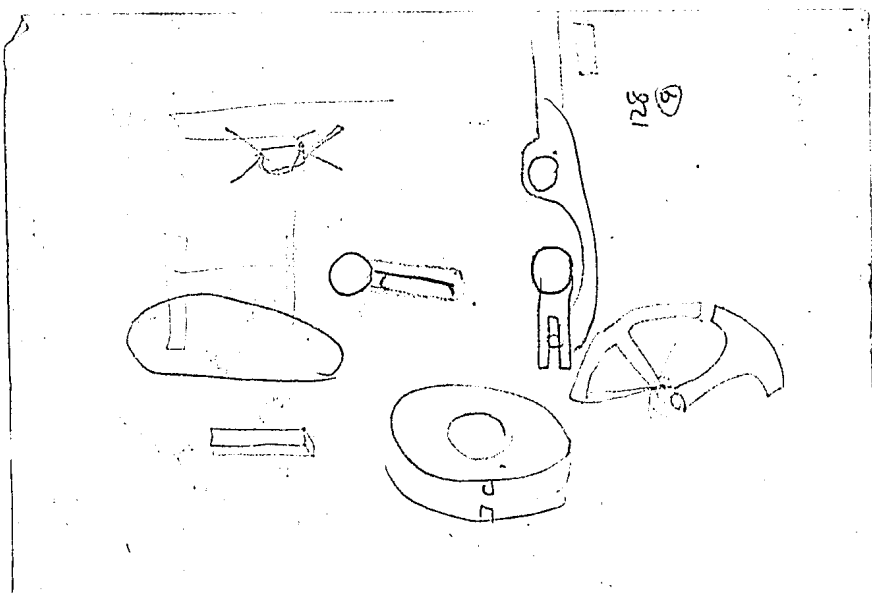
128 (1)





128 (2)

128 (3)

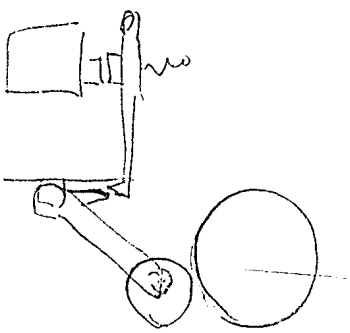


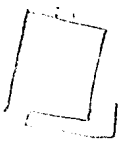
128 (4)

128 (5)

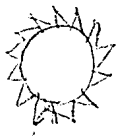
128 (6)

128

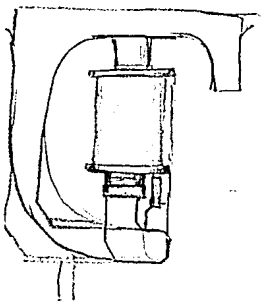


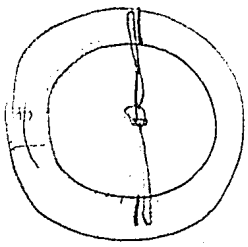


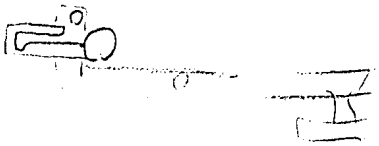
(4) 128



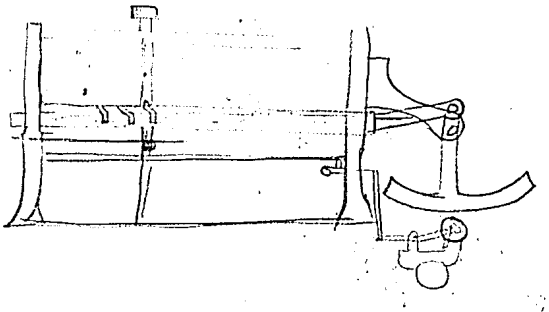
② 128

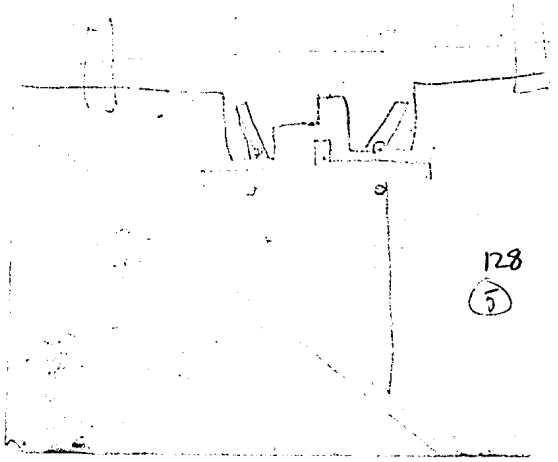






128 ⑧

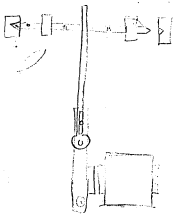


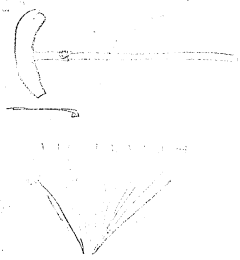


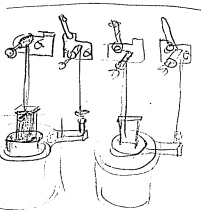
128
⑤

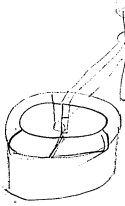
(3) 128

Proc. No 3. Mercurial Pumps

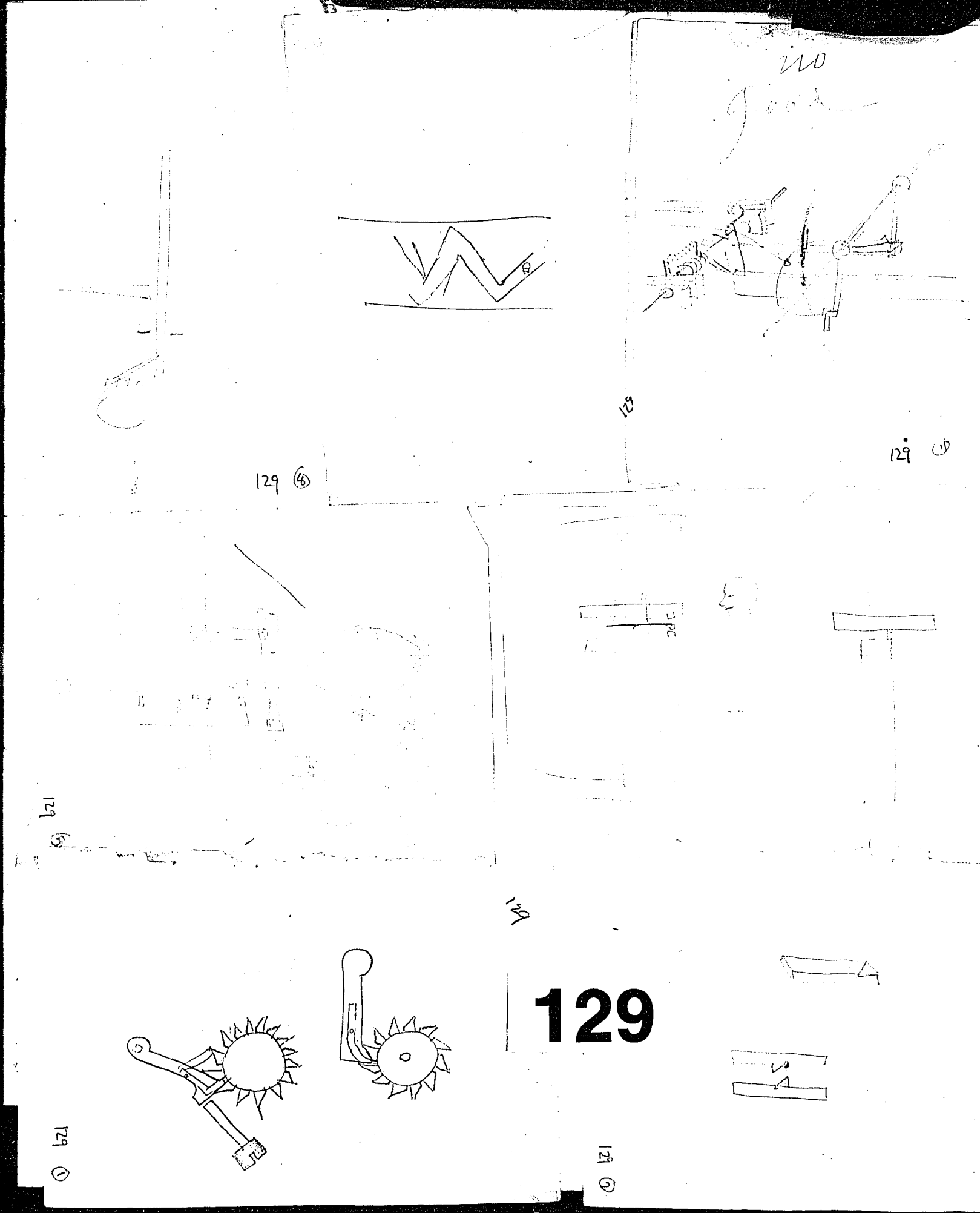


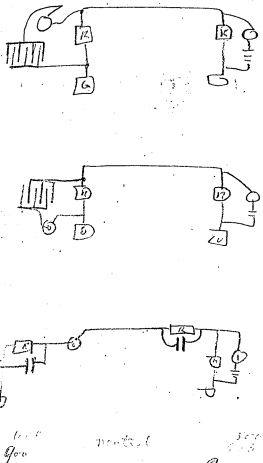


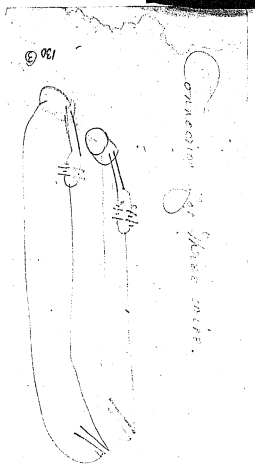


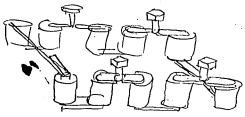


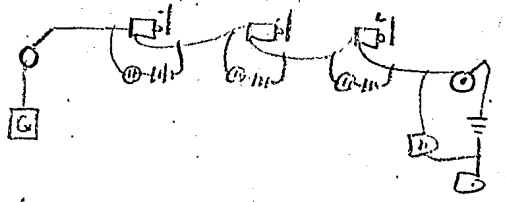
129


129



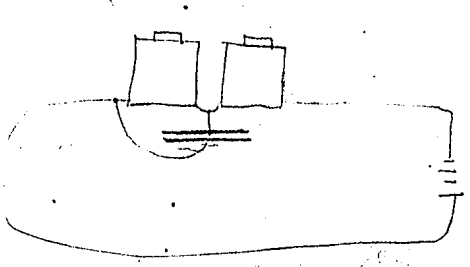


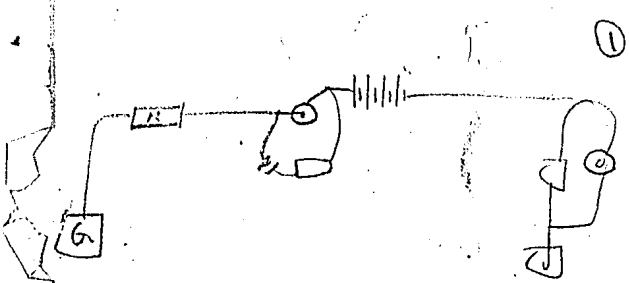


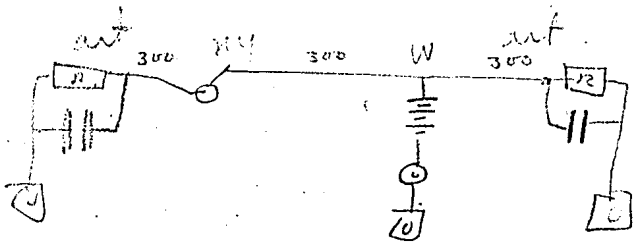


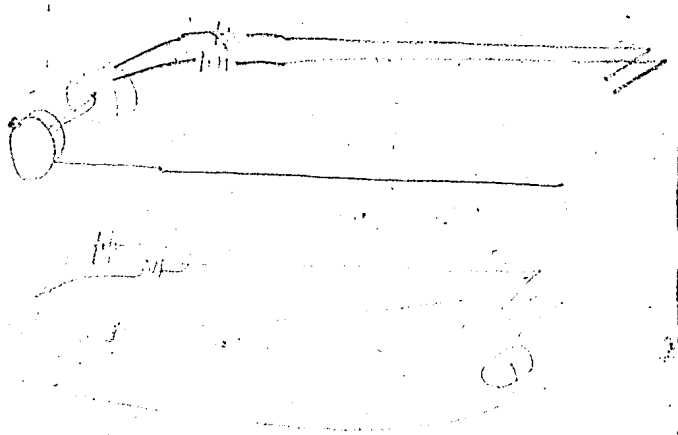
131 ①

See if Relay shunted with water
use no cooling shunt low so that
relay stick then put load
opposing batteries on and see
if sticking is prevented and at
same time see if these opposing
batteries don't push the discharge
current out on the line and
ke tailing:





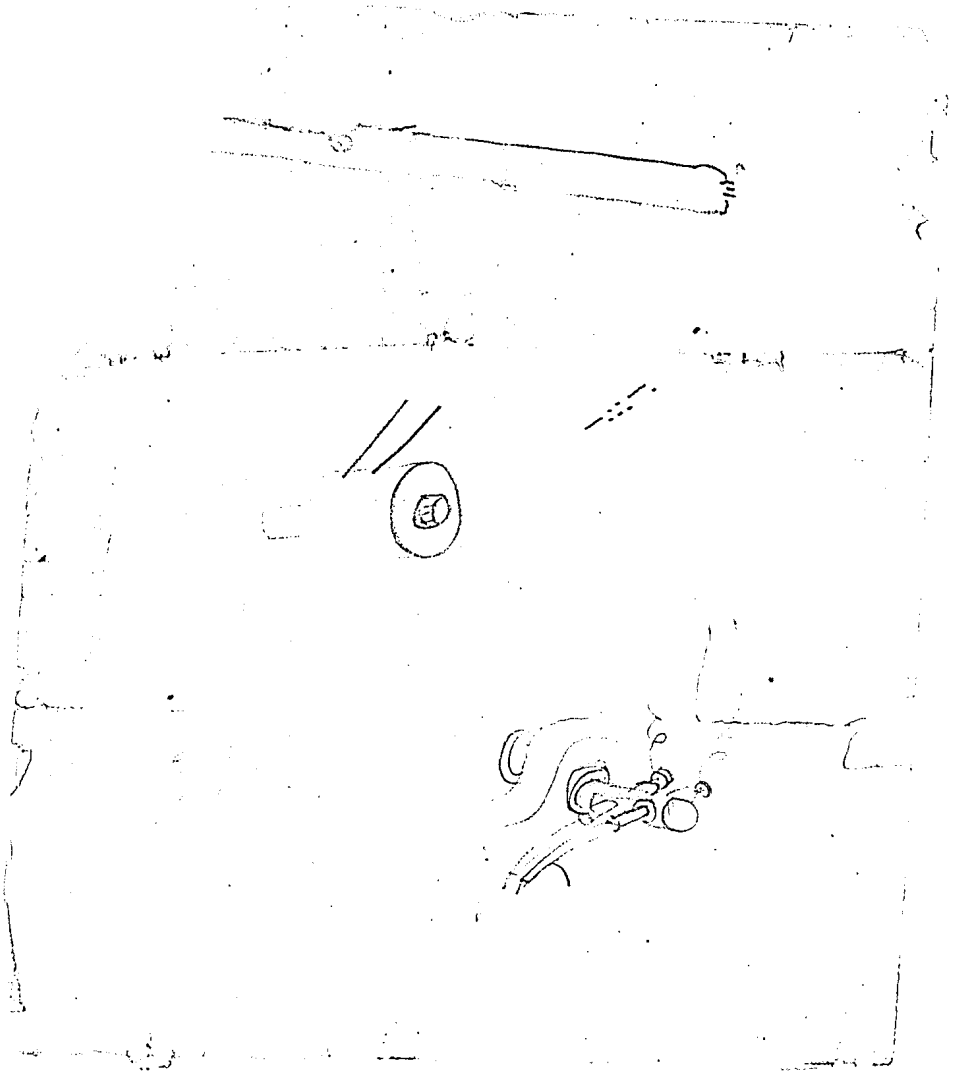




131 ②

It may be that 6,000 necessary at
NY Grat green 100 do as battery
very strong + C chgd high
& thereon on long line when
battery off so that it will
take long time discharge.

131



Sept 13th 1871

T. A. Edison Co.
by Cash Capital $ 12360.05
Additions 3615.81
$ 8744.24

Tim Langer Co
by Cash Capital 12035.22
Additions 1048.82
$ 1445.40

T. A. Edison 8744.24
Tim Langer. 1445.40
2)7298.84
3649.42

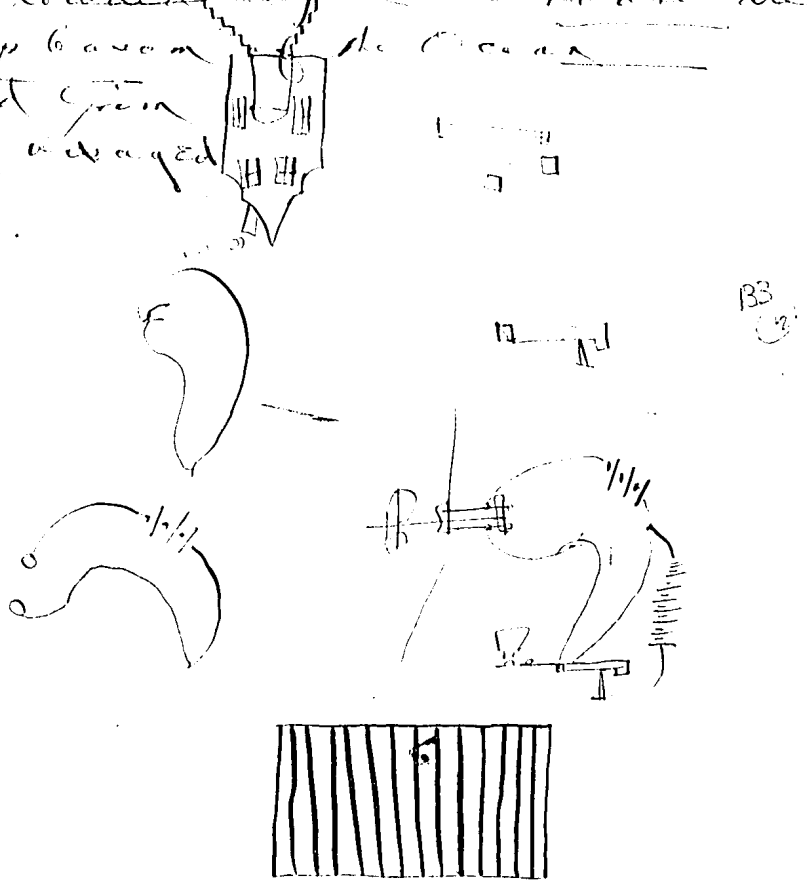
Tim Langer to pay 50
T. A. Edison with Interest percent

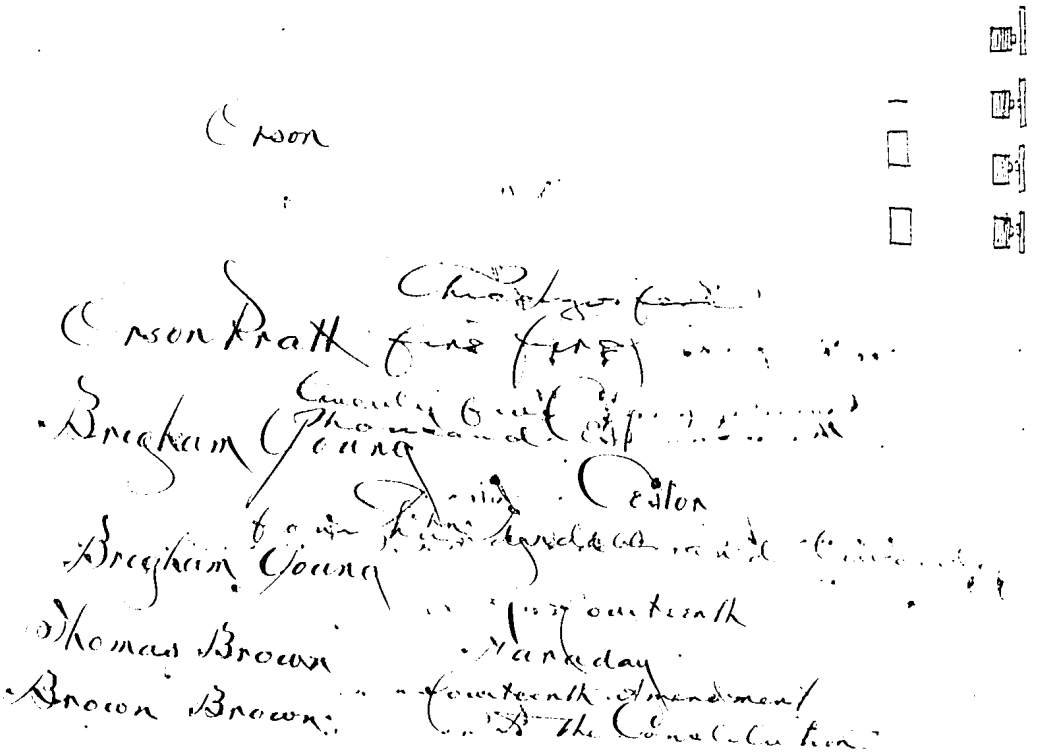
132 1

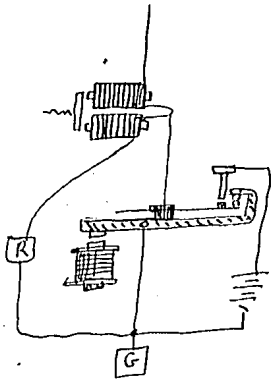
132

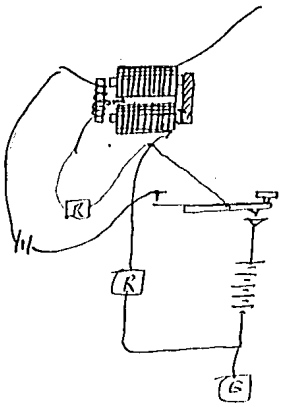
132 (2)

How is the width of one door at least
shade glorious summer to the
poor if you and all the clouds
that towards [illegible] our home are
in deep bosom [illegible]
turned from
from wronged

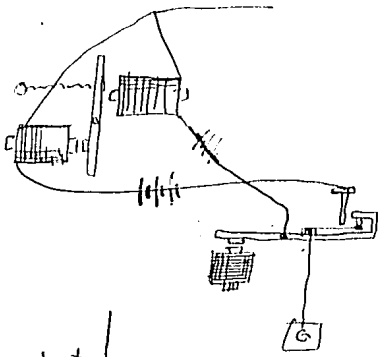


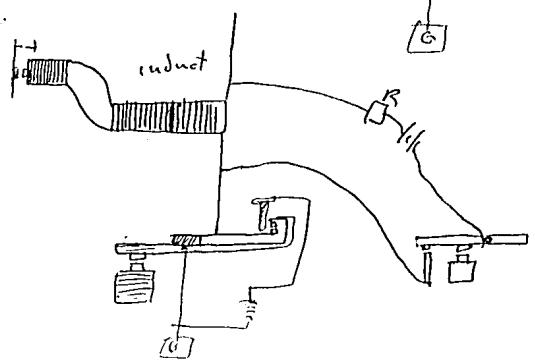




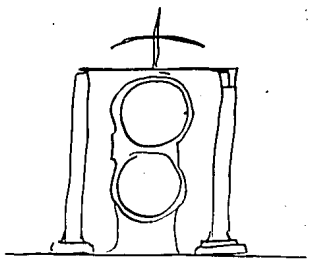


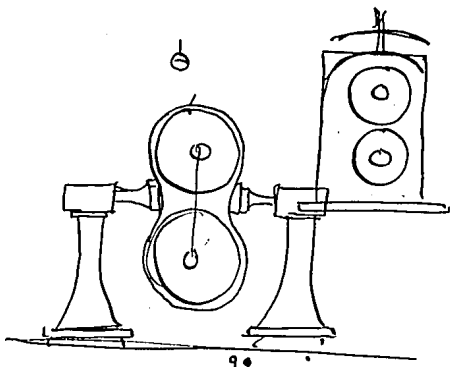
133 (3)



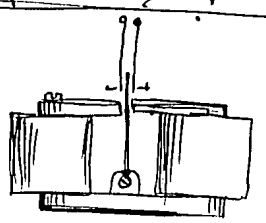


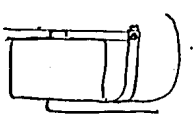
133





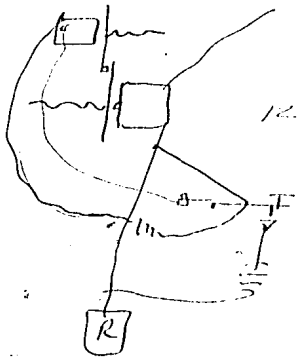
133





133 (1)

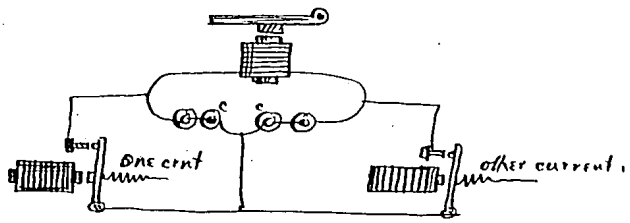
No 7.
10
8
11
No 9
12
134


a
b
R

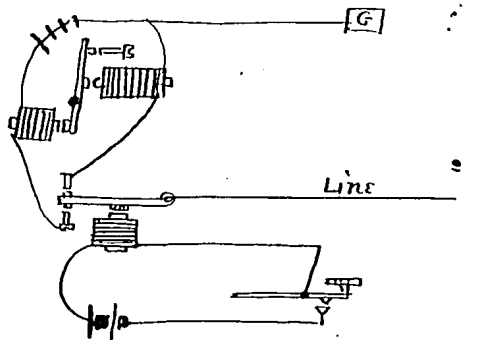
Message No. ..... The Western Union Telegraph Company, *Letter*

From ..... *to* ..... *Sheet*

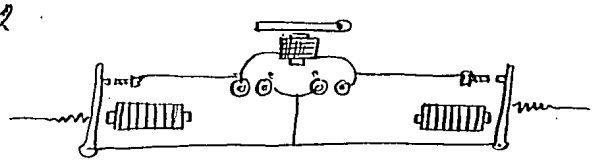
No 20.

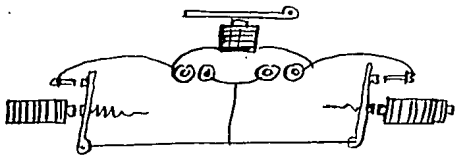


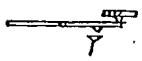
No 21.

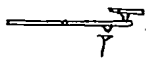


No 22





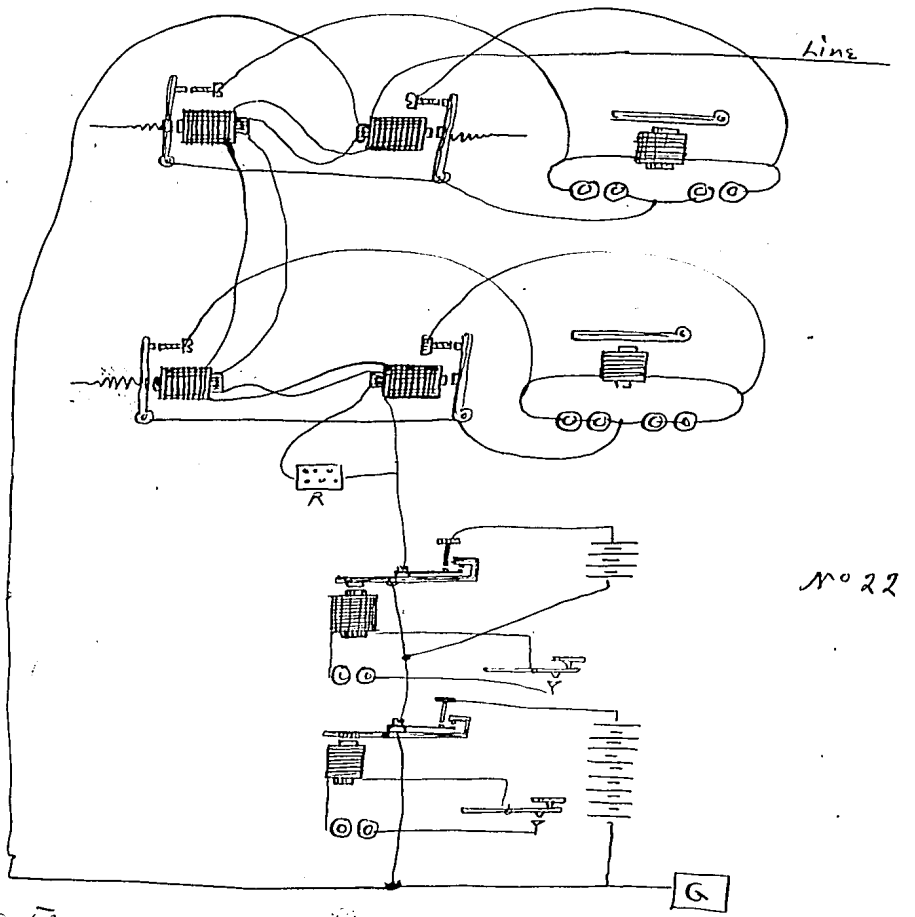




134

(3)

134



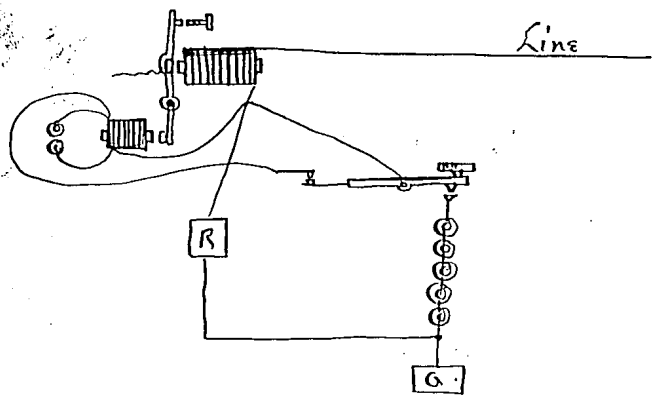
N° 22

134

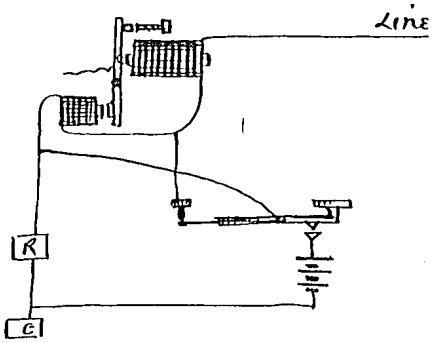
Message No. ..... The Western Union Telegraph Company, *Letter*

From ..... *to* ..... *Sheet*

No 18.



No 19.



135①

135

$$\int_0^{\infty} x e^{x} dx$$

NYork

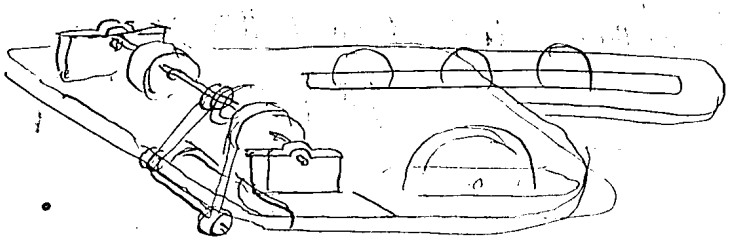
Edison

Would it be possible to use Enough of the Sulphate Copper battery to do our work I presume they are short on this as they use nothing else - You better come over

J C Reiff

.....787

Required *for the use of the* **AMERICAN TELEGRAPH WORKS:**



Approved,

Superintendent.

Foreman. 1370

137

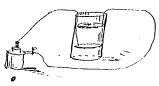
Vol. b.

1

Send to Clark Maxwell description of prevention of liquid diffusion of liquids by electrolytic action,

2

Try the diffusion of different substances between two platinum disks.



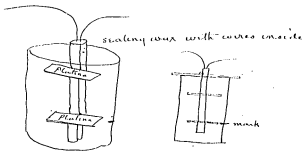
Molasses. — Chromic Acid.
" Chrome Yellow.
" Prussian Blue.
Alcohol colored by Safflower and deep yellow saturated solution of Sulphate of [illegible]
Sulphate of copper and [illegible] colored by Cochineal,
Protosul Iron and [illegible]
Water and Lamp black.
Glycerine & Turpentine,
Reverse connections of battery.
In ascertaining the diffusion first place

1370

137

the solutions in glasses of the same character so that the platinum disks shall fit each one allow them to stand on a quiet place for 24 hours and note the rate of diffusion, Of course the lightest liquid which may be tested with the hydrometer is placed in the glass first and the liquid of a greater weight is poured down a glass tube to the bottom of the glass very slowly and carefully to prevent mechanical diffusion. a mark is then made where the two liquids join and a note made as to the sharpness of the line the glass is then covered with a piece of writing paper on which has been rubbed beeswax and placed over the mouth of the glass and pressed down on the rim. This prevents evaporation at the end of 24 hours the difference which shows considerable diffusion is drawn down and the platinum disk placed in it so that the lower disk shall just come to the mark previously made on the glass. This is connected to the battery the lower to the Zinc pole and the

copper platina pole or desk to the copper pole, put aside and note the time it takes to bring back the two Liquids to their original position and so on With the whole number note all phenomenon — The platina disks should be made thus



also immerse in two d… capilates, and connect to battery —

Arrange a test tube w… two platinum strips and connect 4 Calland- and test all the metals in Table A. Bloxam under electric influence and ascertain if the reactions are the same. 137 (a) also use very dilute solutions of the metals

137

to be detected and see if the presence of the electric current increases or decreases the delicacy also pass a spark constantly into the solution from the plate glass machine,

---

Evaporate different metals solutions on clean zinc (polished) by heat and note any specific colors for different metals,

A new reagent for Ammonia is described in Crookes. p. 29.

Crookes says that magnesium has the most powerful electro-mf of all metals. Substitute it for zinc in a small cell and get deflections. p 37.

When Magnesium is put in water it liberates pure inodorous hydrogen – hence associate a magnesium pen with the iron pen in neg fel solution first before the pen in the same path and after the iron pen and note the difference

137

137

A new reagent for Calcium. Common Lungstate of Sodium. Crookes p 38.

The Sulphide of Ammona throws down a black percip with Uranium oxides (O) protoxide hence a Uranium decomposing per would form protoxide which in the presence of Sulphr of Amon would give black signals, probably the ferrids & ferros would give a colored percip. perhaps more stable than the Sulphide of Uranium which like all other Sulphides bowed in the air bust up and walk on their ear Some description is given of the action of Uranium in Crookes p [illegible] 67. says in testing Uranium with Ferrocyanide the presence of Oxalate Ammonium prevents the [illegible]ation of the red percipitate.

Obtain Chem Pure Zinc by method described in Crooke. p 61.

137

13(6)

A gum pen forming a proto. Use ammonia and ferid or ferro. perhaps Chl Sod. - The precip is insoluable in Ammonia and is probably white, Were a paper colored black by some organic color used these marks would be quite plain further information see Crooks p. 62.

Get some Chromium metal from Beardsley & Nickel plater

Barium pen. form proto, add chl Sod. makes at chl Barium add Sul A. forms precip.

To make protoxide of [illegible] — Crooks 71.

Sulphocyanide Pot — [illegible] " 72

Something " 73

To color paper use ie try burnt sugar, Caramel. Roasted Coffee.

137(9)

137

Copper pen – manganese salt. Candela Salt.

Iron pen – Sulphide Am – Copper solution p Crooke 118 [illegible]
Protosalts are kept from oxidization by placing them with pieces of Camphor in clean paper dry. Crooke 128

Get some Hydroferrocyanic acid

Biscay iron from Spain is the softest known get some for pens & magnets

Peppers Book of me[illegible] p 385 - 391.
393 440 422 488 [illegible]s 481
470

Nickel pen – proto percip by Ammon – light [illegible]

Get Palladium
Iridium
Osmium

137(8)

137

Ruthinium per- & Hyposulphite Sodium with Ammonia gives good permanent color in the 1/100,000 part very delicate.

Try and make pens on brass settings of the small pieces of metals on hand. Crooke 298.

Protochloride of Uranium prevents a proto from becoming a per it also reduces a Deuqui to a proto. Hence mix some with regulated Sol to prevent the proto going to a per- It is made by formula Crooke 323. 324. — Refer to 347 Crooke

Ohl Cal. Carb Sod Hydr[illegible] pot percip organic bodies - hence in Logwood Sol. replace Chl Sod with some Conducting [illegible] that does not give this effect. See Cr[illegible]e 348.

Crooke 349. Something abt Iodine & Bengal Try Sol. - arsenic

137(1)

137

Crookes 350. gives following test for iodine
Water 100 grms Starch 1 gramme Nit
Pot 1 grm boil 5 min add 10 drops
Hydrochloric A.
Make some regular paper. 2 lbs to
Gallon. Also same with this test
added in proper proportion ascertain the
increase in delicacy and permancy.
More about it p 361.
" 362. Disalphide Carbon long used in France
as a test for iodine

Cyanogen — p. 363. good

Get chemical Charts.

Antimony Pen Chl Sod Antimoniate Potash
Black precip.

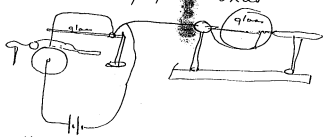
137

Theorem} Soon pen-sol Sulphocyanide pot. Chlorof Nitric a added to convert from proto to a per Chlorine evolved turns it into a Chloride Blood red mark.

Silver pen. Iod Pot. Little Nitric A. — yellow mark ingalenable

Black paper Silver pen — Chl. Sodium — White precip

Test the conductivity of continuous jump spark from electrical Machine for Voltaic E. with Chemical paper Thus



No that wont work

137(1)

137

See what effect oil has poured on different Chemical Solutions

Quickest oxidizer. Mixture Nit A X Chlorate Pot. Cooke 424.

Subscribe Boston Journal Chem Chem news, Druggest American.

137

15

4 this to 50 we can make
Long ordinary magnet thereby
getting length & yet have
no induction -

Punches
/ Punch for carrying pulley
/ — — — — —
/ — — — — —
/ — — — — —
/
/ Dog punch for ⌐ —
frame for jaw board.
Drill jig for top plate
" " brake lever
" " ⌐ plate
Dies
12" gear
wheels

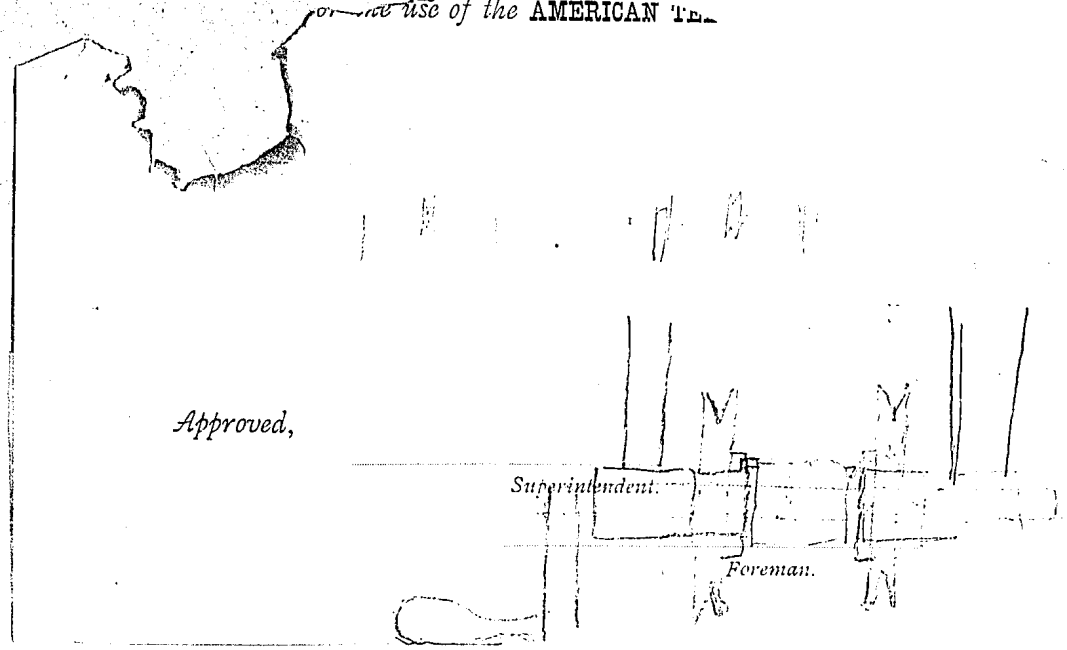
3

Pulley

The object being the on a very high revolving but little Chance Comes over with lowering to Leverage say Equal to 2 Cups - The iron revolving on tufnol pap which rests on nickel drum form 1 Cup Gallery [illegible] to [illegible] the Circumference of the 2 Cups Which Comes over by 1 Cup only is away We want do [illegible] to [illegible] with to [illegible] 138 (3)

138

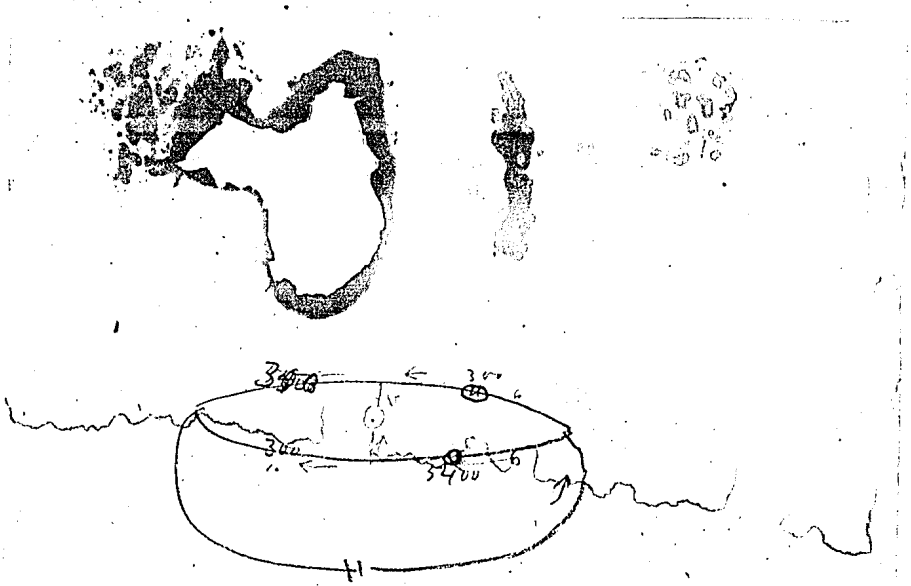
...e use of the AMERICAN T...



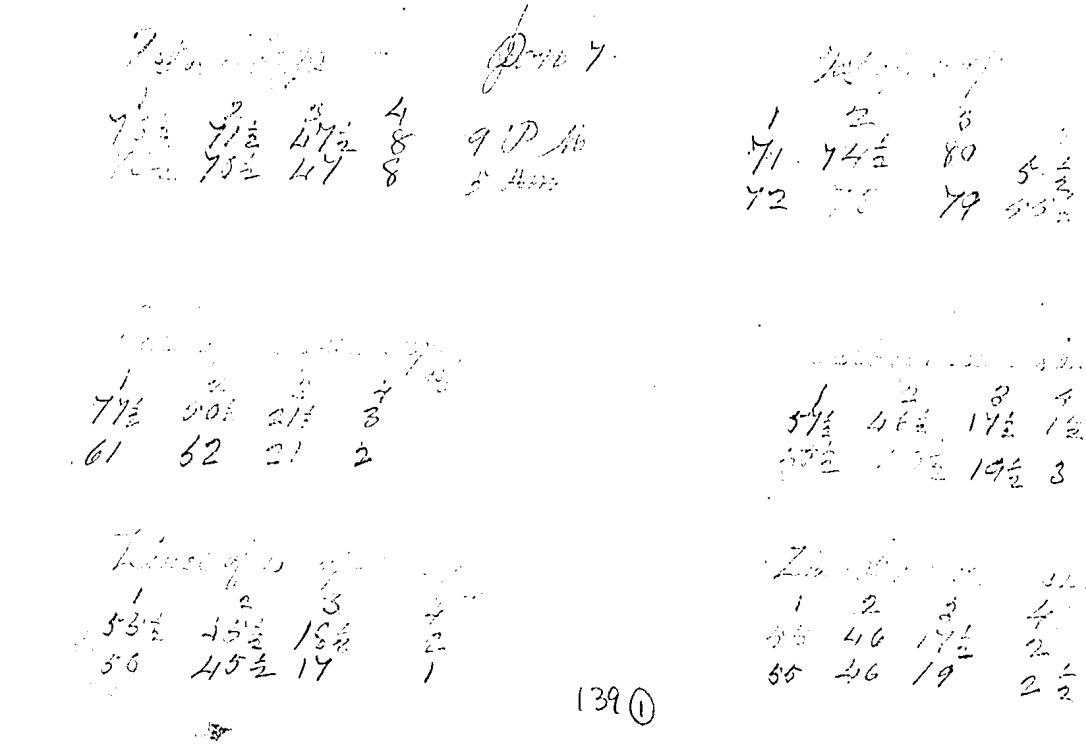
Approved,

Superintendent.

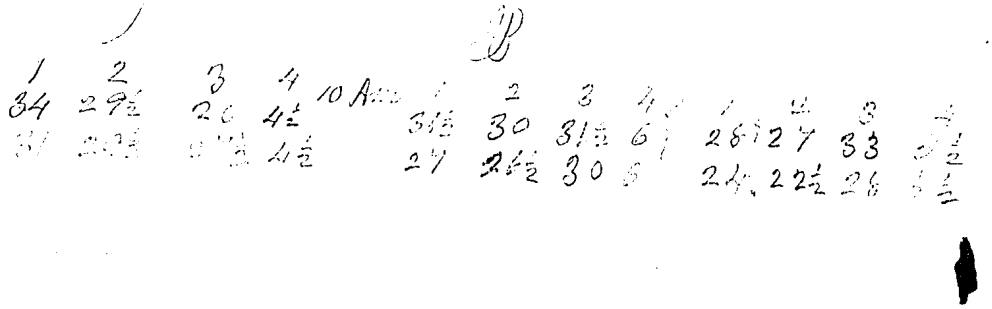
Foreman.



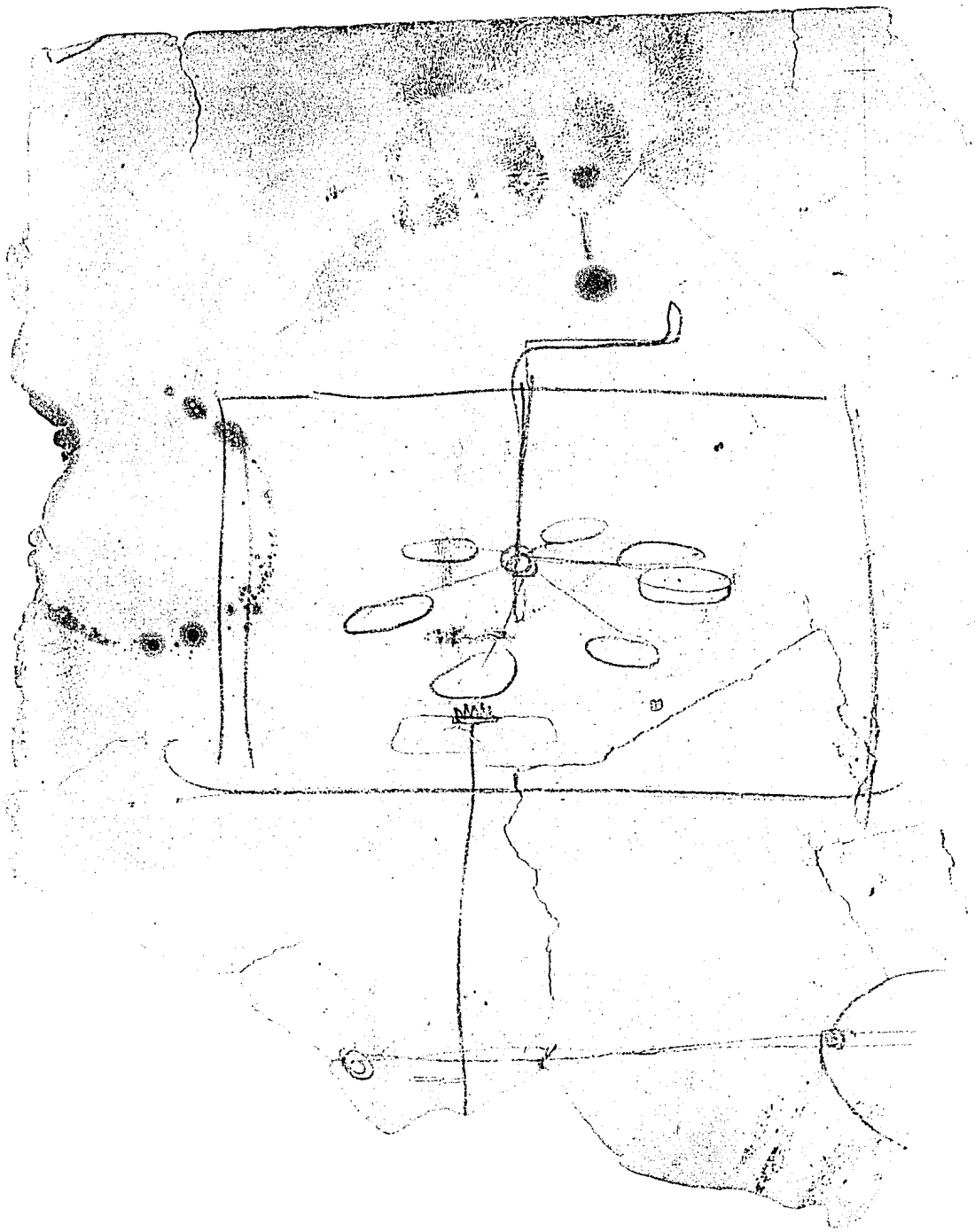
138



139 (1)



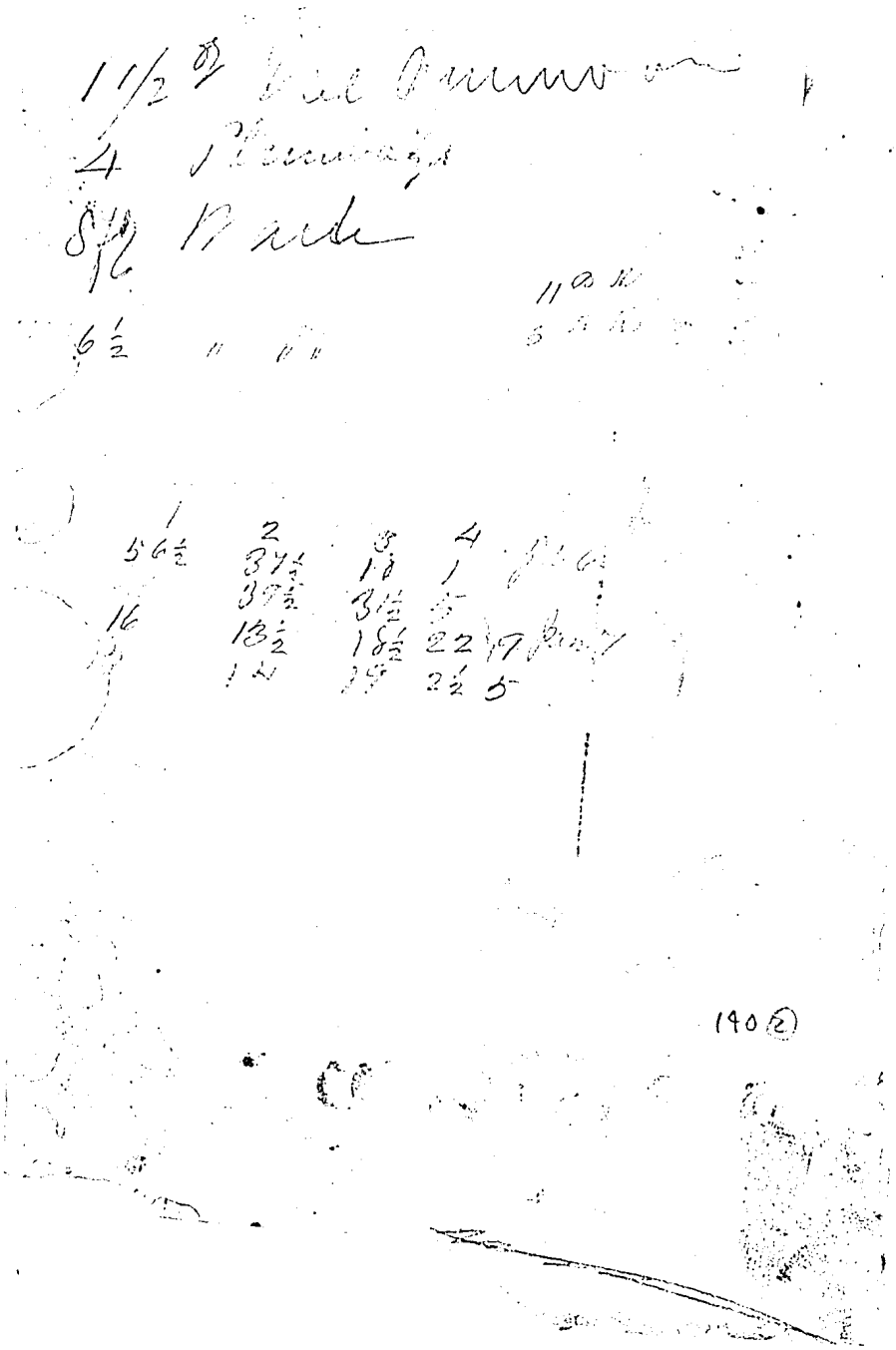
139 (2)



139③

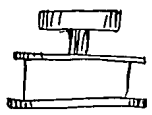
	Outside	2nd qty Pound Cake	2nd qty				2	3	4
1	water	— water	32	1005	17	8	1		
2	water	3% Glucose	—	1025	69	70½	73½	34½	
3	Hydro Sulph acid	Salts Hydrochloric acid	Salts	1025	57½	32½	28	4¼	
4	"	" water 32 Sulph Soda	32 ½	1049	86	24½	11	1¾	
5	"	" water Chloride Calcium	32 ½	1055	81¾	46	33½	5½	
6	"	" Soda Acetate	½ 32	1108	35	26	12½	2	
7	"	" Salt Coffee Acetate	½ 32	1115	57	52	40½	7½	
8	"	" Salt Salts Acetate	½ 32	1123	36½	27	12	2	
9	"	" Benzoic Soda Acetate	2 drops 32	1130	33½	16½	5	1	
10	"	" Ka Tez Acetate	½ 32	1138	43	35	17½	2½	
11	"	" Sodium Carbonate Acetate	½ 32	1150	54	22½	7	1½	
12	"	" Sodium Salts Acetate	½ 32	1153	57½	38½	15	1½	
13		Water Sugar Acetate	½ 32	1155	67¾	61½	48½	7½	
14	"	Sodium Acetate	½ 32						

140 ①



H E R E

E L E C T



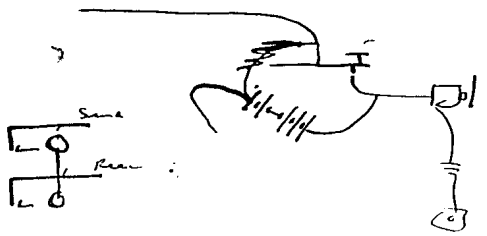
50.
30
1500

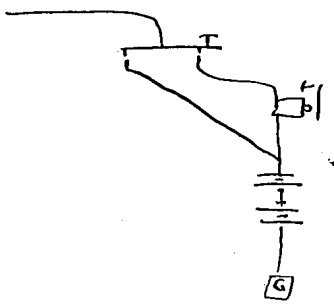
30
30
900

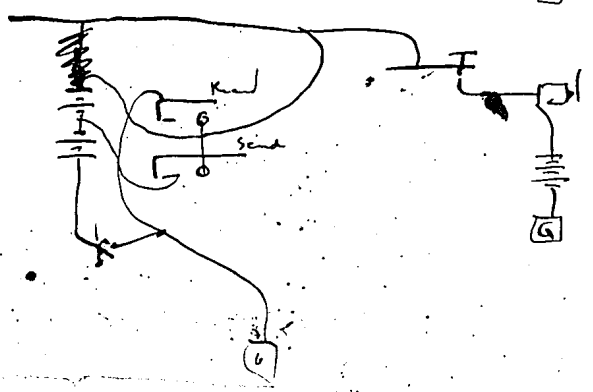
35.
30
1050.

C

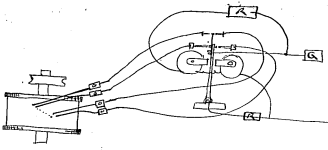
Elec.
Electrician Elliot
Loyal Christian
Christian







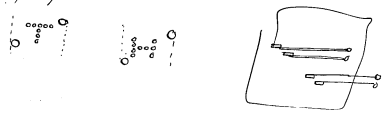
141



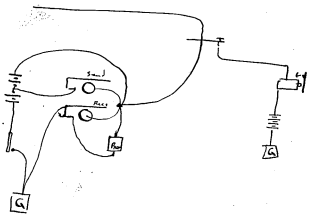
"The Western Union Squeeler"

Telegraph

THIS IS A TELEGRAPH

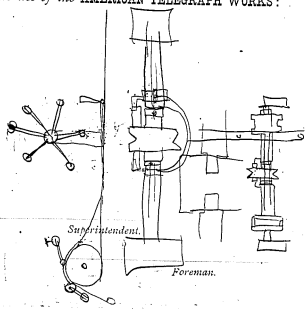


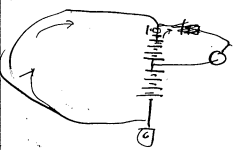
THIS IS A TELEGRAPH 142



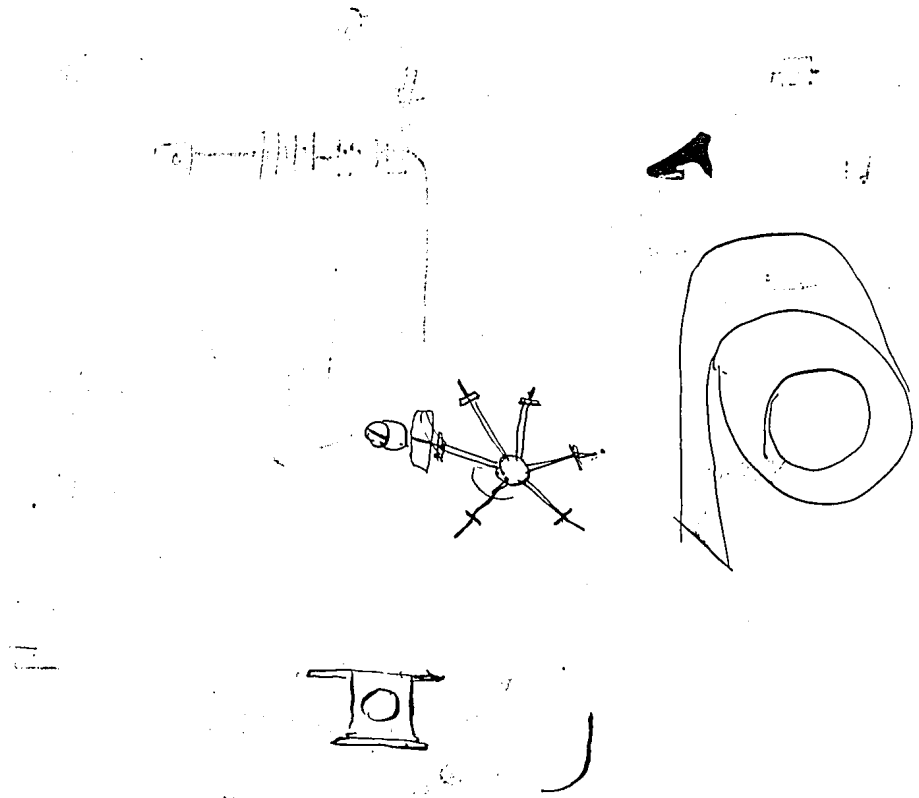
787

the use of the AMERICAN TELEGRAPH WORKS:

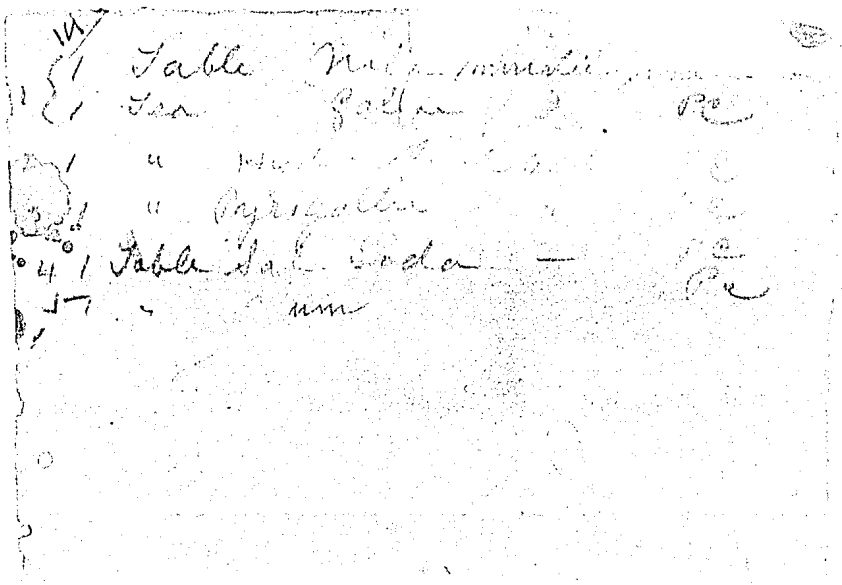




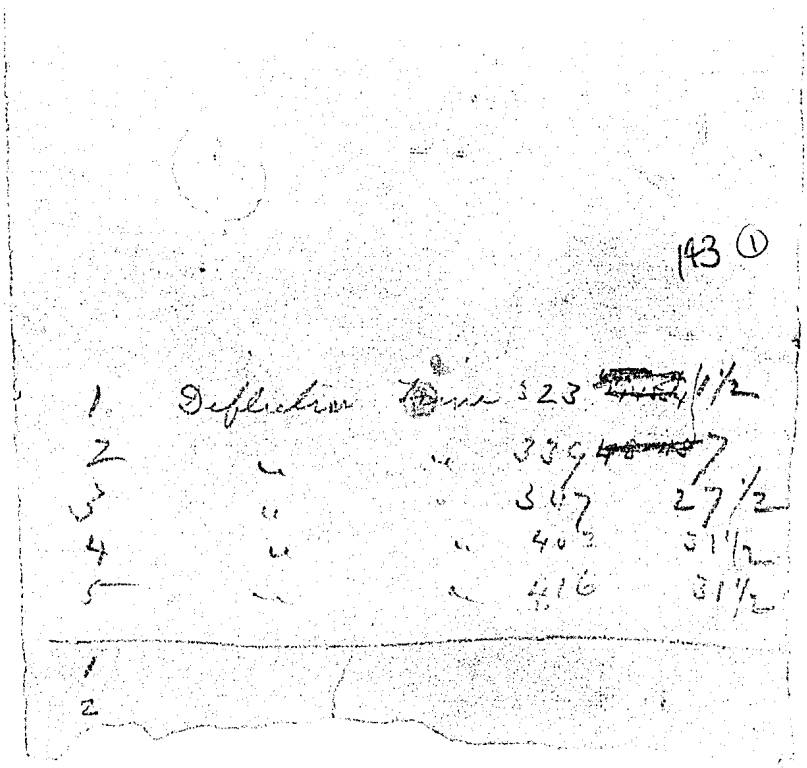
142



Reg Bar — Span 24 — Box Bar



AB ②



143 ①

143

No. 20,305.—Charles W. Smith, of Evans, New York.—*Improved Devices for Regulating by Electricity the Issue of Gas from Burners.*—Patent dated May 18, 1858.—The claim and engravings explain the nature of this invention.

The inventor says: I wish it to be understood that I do not claim the use of the attraction and repulsion of temporary and permanent magnets, to obtain an increased for actuating the supply cock.

Neither do I claim the use of a pawl or ratchet, or their equivalents, for the purpose of controlling the supply of gas, and consequently the size of the flame.

But I *claim* the combination and use of a permanent and temporary magnet, or of two temporary magnets, one fixed and one vibrating, with a pawl and ratchet, situated substantially as described upon the supply cock of a gas burner, or series of burners.

I claim also the use of a thin slip of metal, or its equivalent, to deflect a portion of the jet of gas upon an ignited platina coil, situated entirely without the jet, as described. 1580

No. 20,255.—Henry M. Collier, of Binghamton, N. Y. & Henry N. Baker, of New York, N. Y.—*Improved Electric Lamp.*—Patent dated May 18, 1858.—The claim and engravings will explain the nature of this invention. 1582

The inventors say: We do not claim the feeding together of the electrodes in an electric lamp by means of floats, springs or other mechanical appliances, nor the mechanical pole changer as heretofore used, but only as applied to an electric lamp in the manner described.

But we *claim* the employment in an electric lamp of an open seat *i*, contained in a stationary bridge plate c, or its equivalent, and receiving the electrode in such a manner as to allow the point only thereof to protrude through it the distance required, and permitting the advance of the said point so fast only as it is oxydized and reduced by the electric current, substantially as described.

We also claim the combination of the loaded tube *b* carrying the upper electrode c, the open seat *i*, and the mercury tube *f*, in which floats and is secured the lower electrode c^1, substantially as described, so that while the upper tube *b* feeds the upper electrode down to the open seat as fast as it is reduced, the lower electrode c^1 is also fed up as fast as reduced and kept in its proper position with reference to the upper electrode c. 1583

No. 21,853.—Jacob S. Simmerman, of Glassborough, N. J.—*Improvement in the Method of Applying Electricity during Extraction of Teeth.*—Patent dated October 19, 1858.—The claim and engraving explain the nature of this invention. 1584

Claim.—Applying electricity to the gums or teeth, or both, during the operation of extracting teeth, by means of the insulated adjustable spring clip described, or its equivalent, the said clip being connected to one of the poles of an adjustable electro-magnetic machine, or its equivalent, as set forth, and for the purpose specified.

No. 20,390.—Jerome B. Francis, of Philadelphia, Pa., assignor to William Harper, jr., of said Philadelphia, assignor to Jerome B. Francis, assignor to James F. Clark, of said Philadelphia.—*Improvement in the Method of Extracting Teeth.*—Patent dated May 25, 1858.—This improvement consists in combining with a common dental forceps an electro-magnetic machine in such a manner that a wire C from the negative pole P of the machine shall form a metallic connexion with that part of the forceps D that grasps the tooth, and that the positive pole of the machine shall be connected with the patient's hand by a metallic connexion. 1585

Claim.—The combination of the electro-magnetic machine, or its equivalent, with the forceps, for removing teeth without pain, arranged and operating substantially in the manner described.

No. 22,063.—James J. Clark, of Philadelphia, Pa.—*Improvement in the Mode of Connecting Electro-Magnetic Apparatus with Tooth Forceps.*—Patent dated November 16, 1858.—This invention consists in the interposition of a foot key in the course of one of the wires composing the circuit, so that the dentist can have the circuit open or incomplete until the proper moment, and then with his foot close it, thus preserving the free use of his hands. 1586

Claim.—The employment of the foot key K or its equivalent, in combination with the electro-magnetic machine and forceps, arranged and operating substantially as described.

No. 19,778.—J. Burrows Hyde, of New York, N. Y.—*Improvements in Composition for Coating Telegraph Wires.*—Patent dated March 30, 1858.—The claim will explain the nature of this composition. 1587

The inventor says: I do not wish to be understood as confining myself to the precise proportions set forth.

But I *claim* an insulating compound for telegraphic wires, formed by mixing boiled linseed, cotton seed, or rosin oil, with natural or artificial asphaltum, substantially in the manner as described.

No. 22,125.—Calvin Kline, of Brooklyn, New York.—*Improved Method of Neutralizing Local Attraction of the Needle.*—Patent dated November 23, 1858.—The nature of this invention consists in the arrangement of one or more magnets in a horizontal position, below or above the needle of the compass whose opposite poles lie in the horizontal planes, having their common neutral centre in the needle's axis of rotation, and on opposite sides thereof; by which arrangement the opposite poles of the magnet, or magnets, are caused to act upon the needle to force it into the same direction; and in so applying the so arranged magnet, or magnets, as to make it, or them, adjustable on a centre coinciding as nearly as practicable with the vertical axis about which the needle turns, that their poles may be made to point in any direction necessary to compensate for the local attraction, and may have their direction varied to meet any variation in the point, or points of local attraction that may be produced by different cargoes or by other causes. 1588

Claim.—Applying and arranging the magnet, or magnets, in a horizontal position, or positions, below or above the needle of the compass, with opposite poles in the vertical plane of the axis about which the needle turns, and on opposite sides thereof, and in such a manner as to be adjustable on centres lying in, or as nearly as practicable in, the vertical axis about which the needle turns, that their poles may be made to point in any direction necessary to compensate for local attraction and have such direction varied as may become necessary, substantially as herein set forth.

No. 605.—*Improvement in Magnetic Printing Telegraph.*—I claim, first, the employment of force, derived from an electro-magnet, to govern and regulate a force derived from the use of compressed air or other fluid, substantially in the manner and for the purpose specified.

Second. I claim an electro-magnet constructed substantially as described; that is to say, when made up of a series of hollow stationary and moving magnets, arranged substantially as specified, so as to effect the movement of a rod or axis on which the latter are mounted, substantially in the manner set forth.

Third. I claim a valve, substantially such as is specified, in combination with any electro-magnet to move that valve, and a piston or its equivalent, whose motions are effected by the pressure of air or fluid, whose action is controlled by such a valve; the combination being substantially such as is specified.

Fourth. I claim an endless band, acting as a reservoir of coloring matter, and arranged substantially in the manner and for the purpose specified, in combination with paper and a series of types and a spurred cylinder, so as to record characters when pressure is applied.

Fifth. In combination with a key-board at one locality and a printing apparatus at another, or in combination with both a key-board and a printing apparatus at each locality, I claim a detent or stop, moved by the hand of the operator, for arresting the motion of a type-wheel at one determined and fixed point, when there is combined therewith a key corresponding, when the parts are in proper position with that determined and fixed point; the detent and key being substantially such as specified.

Sixth. I claim driving a type-wheel of a printing apparatus by means of a friction connexion, substantially such as is described, between it and a prime mover, so that the motion of the former may be modified or its motion stopped without causing the motion of the latter to be stopped or modified.

Seventh. I claim combining with a wheel of a printing telegraph, which must at times stop and at other times be in motion, a spring compressed by the action of the parts when in motion, and exerting its force to start the wheel when released from any detent that may arrest its rotation, the combination being substantially such as to effect the purpose set forth, substantially as described. 1589

Eighth. I claim causing the paper to be printed to approach the type which is to impress it by means of a friction connexion with a prime mover, so that the latter may remain in motion while the former is at rest, substantially in the manner set forth.

Ninth. I claim the apparatus substantially as herein set forth for governing the approach of paper to a type-wheel that at times moves and at other times stops, so that the apparatus which brings up the paper shall act for that purpose when the type-wheel ceases to revolve for a longer period than usual.

Tenth. I claim, in combination with a type-wheel of a printing telegraph, a spurred or toothed cylinder, substantially such as is specified, the latter causing the paper to progress as the purposes of printing by the types *m* the former may require, substantially as set forth; and this I also claim in combination with another surface substantially such as is specified, to press the paper upon such spurs in the manner substantially as described.

1590 Royal E. House.

No. 20,851.—Joshua Lowe, of New York, N. Y., assignor to Himself and Daniel Barnum, of Jersey City, N. J.—*Improved Magnetic Steam Gauge.*—Patent dated July 6, 1858.—The claim and engravings explain the nature of this invention.

The inventor says: I am aware that air and mercury have heretofore been combined and used in tight isolated or separate chambers to make pressure gauges, but not in combination with a self-adjusting magnet and traversing needle. I am aware also that magnets, dial plates, and needles, have been used in combination, but not in a tight, isolated chamber separated from the steam boiler, or other means of making pressure, or for the purpose of marking or indicating either pressure within a boiler or a vacuum in a condenser. I therefore do not claim either of these except as herein specified and for the purposes named.

But I *claim* the construction of a polar magnet with one arm or pole larger than the other, so that the enlarged pole will float on the surface of the mercury, whether the lesser pole be immersed or not, whenever the said magnet is placed within a chamber filled or partially filled with mercury, and hung on pivots *a* in the centre, thus making a self-adjusting movable magnet, capable of being used as a floating magnet within, in a small tight chamber, substantially as described and shown.

I claim, also, the combination of a floating magnet, a magnetic needle, and a dial or index plate *b*, forming one side of an isolated tight chamber, and with mercury and air within said chamber or their equivalents, for the purpose of making a magnetic pressure gauge, substantially as described and shown.

I claim, also, the combination of a floating magnet *d*, a magnetic needle, and a dial or index plate, forming one side of an isolated tight chamber, and with mercury or other fluid within said chamber, for the purpose of making a magnetic vacuum gauge, substantially as described and shown. 1591

No. 566.—*Improvement in Electro-Magnetic Alarms.*—I claim, first, the mode of breaking and completing the circuit, or *vice versa*, that is, by the spring circuit-breaker operating to cause the vibration of the armature.

Second. So combining a hammer and bell with the self-vibrating armature that the vibrations of the latter shall produce a continual ringing of the bell under circumstances substantially as described.

Third. The combination of these parts, (viz: the circuit-breaker, hammer, bell, and vibrating armature,) or their equivalent or equivalents, with a self-acting spring or key in a door or window to operate so as not only to bring them automatically into action when the door or window is open, but maintain a continuous or continued ringing of the bell by the interruption of the electric current without intervention of other machinery. 1592 Augustus R. Pope.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

No. 19,379.—NATHANIEL PARKS, of Rome, New York.—*Improved Receiving Magnet.*—Patent dated February 16, 1858.—A A^1 A^2 is the electro-magnet, B B^1 the helices. The leg A^2 of the magnet fills only a part of the bore of the helix, the remaining space being left for the vibrations of the permanent magnet *a*. In contact with the leg A is an adjustable piece of soft iron C, the end of which is made to approach the magnet *a* and attract it, thus combining the repulsive and attractive forces in moving this magnet whenever the electro-magnet is charged.

The inventor says: I *claim*, of my improvement in receiving magnets for telegraphs, opening and closing the circuit by means of a vibrating permanent magnet enclosed within one of the helices, together with an electro-magnet, and operated upon by both poles of the electro-magnet in the manner set forth.

Third. The spindle *d*, with its adjustable bar N, and pulley *f*, a the spindle *e*, with its adjustable bar N, and pulley *h*, in combinati with the adjustable poin. *m*, and endless chain I, the whole bein arranged on the beam A, substantially in the manner and for th purpose specified.

No. 19,642.—JOSEPH LACASSAGNE and RODOLPHE THIERS, of Lyons, France.—*Improved Apparatus for Regulating and Measuring the Intensity of Electric Currents.*—Patent dated March 16, 1858.—This apparatus is founded upon the combination of the following three well known principles:

First. When a galvanic current is made to pass through a liquid that is less conducting than the wires of the battery the intensity or quantity of electricity set in motion in a given time is inversely proportional to the resistance which it experiences passing through the liquid, and this resistance may be regulated either by increasing or diminishing the conducting powers of the liquid or by increasing or reducing the number of contact points immersed in the same.

Second. When the surfaces of the conductors immersed are of such metal as is not attacked by the liquid, platina for instance, gases may be obtained in the free state which are evolved by decomposition of the liquid by the electric current, the quantity of gas obtained being proportional to the intensity of the current or to the quantity of electricity to which the immersing liquid has given passage.

Third. The attracting power of an electro magnet varies, *cæteris paribus*, in the same proportion as the intensity of the current which creates the same.

Claim.—Combining the application of the three principles specified, so as to form an apparatus for regulating and measuring the force or intensity of the electric current produced by any battery, and applicable to telegraphing and motive purposes, substantially as set forth.

No. 19,766.—SAMUEL GARDINER, Jr., of New York, N. Y.—*Improved Method of Lighting Gas by Electricity.*—Patent dated March 30, 1858.—This invention relates to the lighting of gas as it issues from a burner by the heat generated by the passage of a current of electricity through a coil of platinum *b* wire, forming part of an electric conductor, and placed near the orifice of the burner. It also relates to the employment of a platinum coil near a burner to be heated by the flame to a sufficient degree to reignite the gas if the light should be extinguished.

Claim.—Placing a coil of platinum wire, or its equivalent, in the relative position to the jet of gas, as described, for the purpose of lighting the jet by electricity, and for the reigniting it when blown out, under the circumstances and for the purposes set forth.

No. 21,781.—CHARLES W. SMITH, of Evans, N. Y.—*Improved Method of Lighting Street Lamps by Electricity.*—Patent dated October 12, 1858.—The nature of this invention will be understood from an examination of the claim and engravings.

The inventor says: I *claim*, first, the combination and arrangement

covering the en...
seen at C; the ho...

verized soap-stone and placed in heaters or ovens, where it is exposed to a temperature of about three hundred degrees F. for about ten hours, until it becomes hard. On being taken from the heater the rubber C is found firmly attached to the hook. It is now placed in an engine lathe and a screw cut upon it.

Claim.—The iron wire supporter or hook in combination with a screw insulator made of hard India-rubber and attached to the hook or shank, in the manner described.

No. 20,698.—GIOVANNI CASELLI, of Florence Italy.—*Improved Pantographic Telegraph.*—Patent dated June 29, 1858.—A description of this invention would require too much space to be given here. The claim and engravings will give an idea of the invention.

The inventor says: I do not claim the general use of electricity for producing fac similes upon chemically prepared paper or other material.

But I *claim* the mode of rapidly transmitting the fac similes of writings, drawings, cyphers, and arbitrary signs in colored characters, upon ordinary white or chemically prepared paper, substantially as described.

I also claim the mode of receiving and transmitting different despatches at the same time and with a single wire, as described.

I also claim the use of local piles, with circuit always closed, for the production of the characters in chemically prepared paper, as described.

No. 21,329.—MOSES G. FARMER, of Salem, Mass.—*Improved Method of Sending and Receiving Messages simultaneously over the same Telegraphic Wire.*—Patent dated August 31, 1858.—The object of this invention is to receive messages simultaneously over the same wire and upon one instrument, and this is accomplished by the employment of an accessory battery to each instrument, in combination with the main batteries and main magnets, and with a means of reversing the current of each of the main batteries.

Claim.—The employment of an accessory magnet and an accessory battery to each instrument in combination with the main batteries and main magnets, and with a means of reversing the direction of the current of each of the main batteries, in the manner substantially as set forth.

No. 19,116.—JOHN ABSTERDAM, of Boston, Mass.—*Improved Construction of Telegraphic Cables.*—Patent dated January 19, 1858.—In the engravings A represents a cable formed with corrugations or flextures, as shown at *a b c*. In figure 1 *d* is the circuit wire or strand, while *c c* represents an insulating covering of gutta-percha or other suitable flexible material, such covering being surrounded by, or having wound on it, a metallic covering *f f* formed of twisted strands of steel wire in the usual way. The metallic portion of the cable being practically inelastic with reference to its insulating and protecting covering, the whole is formed either with corrugations or flextures.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

Claim.—Constructing the head of a surveyors' tripod in such a manner that the portion to which the instrument and plumb line are attached may be adjustable in any direction horizontally to the portion to which the legs are jointed, when the usual levelling screws *i* serve the purpose of binding the two portions of the head D and A together after adjustment, as set forth and for the purpose specified.

No. 19,027.—JOHN J. HAYDEN, of Rising Sun, Indiana.—*Improved Method of Operating Telegram Keys* —Patent dated January 5, 1858.—The nature of this invention consists in placing as many levers side by side as you desire to make letters or figures, each lever having elevated upon its upper edge the number of dots and lines, which, according to the Morse combination, constitute any given letter or figure, and placing the levers when complete underneath a finger-board whose surface is perforated with openings through which the raised dots and lines may protrude, the surface of said finger-board being fluted so that the slots or openings may be in the centre of the groove or flute. In the front part of the lever is placed a wire staple, with the points downward, and the lever is secured by means of a screw at the point marked with the letter *b*, and caused to spring back to its place upon being pressed down; by passing the finger along the flutes over the dots and lines by means of a spring at the opposite end of the lever from where the staple is placed, at the point marked by the letter *a*.

Claim.—The particular formation of the levers into dots, lines, and spaces of any desired length, thereby securing perfect mathematical accuracy in the formation of the ciphers which compose the "Morse Telegraph Alphabet."

No. 19,278.—LOUIS BRAUER, of Washington, D. C., assignor to Himself, L. G. BRANDEBURY, and JOSEPH B. STEWART, of said Washington.—*Improved Apparatus for Paying out Telegraphic Cables.*—Patent dated February 2, 1858.—This invention is designed to overcome the difficulty which has heretofore attended the laying of telegraph cable across the ocean. It provides a spring pulley frame for supporting and weighing the draught on the cable, and receiving all sudden shocks by being combined with the valves of the propelling engine and with the valves of the engine of the paying out apparatus, increases or cuts off the supply of steam as necessity requires, and thus controls the paying out of the cable or the speed of the steamer.

Claim.—I claim the arrangement of the spring pulley-frame with the paying out apparatus and the valves of both the paying out engine and propelling engine or either of the same separately, substantially as and for the purposes set forth.

No. 21,371 —GEORGE SCOTT, of Wiscasset, Me.—*Apparatus for Paying out Telegraph Cable.*—Patent dated August 31, 1858.—The claim and engravings explain the nature of this invention.

The inventor says: I *claim* in combination with a delivering roller, or a system of delivering rollers A B, a tilting lever G, or its equivalent, and a brake mechanism, or any equivalent there[illegible]

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

The inventor says: I do not claim generally the use of the power of electricity or magnetism for telegraphic messages at a distance, and recording them either in printed letters or characters, nor the general arrangement of the wires, posts, or electric circuit or circuits, as these are old and well known.

But I *claim* the use and application of the combined permanent and electro-magnets in the resident magnet, substantially as set forth and described.

I claim also the arrangement of the springs *k* and *s*, or their equivalent, in connexion with the circuit breaker shaft C and type-wheel shaft T, by which the circuit breaker arm *d* and type-wheel R are caused to return to a given starting point after the completion of each letter, thereby causing the instrument to be kept constantly self-regulated.

I claim also the use and arrangement or combination of the circuit breaker wheel D with its undulated periphery, and the hammer *l* and anvil *i*, placed and arranged substantially as described, so that the revolution of the wheel D shall alternately connect and disconnect such hammer and anvil, and also connected with the main battery and line, for the purpose of closing and breaking the main telegraphic circuit, substantially as set forth and described.

I claim also the arrangement substantially as described of the hollow shaft C and clutch *f*, and arm *d*, and the connexion therewith, substantially as set forth, of the swing frame B, by which the clutch wheel *g* is made to take hold of such clutch *f* on the hollow shaft C, to carry forward such shaft C, and the circuit breaker, and the arm *d*, whenever any key is depressed, substantially as set forth.

I claim also the arrangement and combination of the vibrating lever J and its nipple *n*, with the escapement wheel *o*, constructed as described, to cause the type-wheel shaft to revolve step by step at every vibration of such lever, substantially as and for the purposes set forth.

I claim also the use and arrangement of the spring L with its adjusting slide and adjusting screws, substantially as set forth and described, for the purpose of regulating the action of the vibrating lever J.

I claim also the arrangement and combination of the imprinting cam *p*, the paper propelling eccentric *y*, and the type-wheel releasing plane b^1, substantially as set forth, being attached to each other and placed upon a common shaft or otherwise, but so that it is impossible that they should get into different relative positions.

I claim also, in connexion with such imprinting cam and paper propelling eccentric and type-wheel releasing plane, the arrangement and combination of the rod *z*, bar *y*, and imprinting press *x*, and the rod c^1 and the rod *o*, which together cause the letter to be imprinted, the paper to be propelled far enough for the next letter, and the detent cog-wheel P to be forced down so that the type-wheel may return to its starting point and again forced up to clutch the type-wheel, and also cause each of these several things to be done at and in its proper time.

I also claim the arrangement of the armature H, constructed of

1620

... of water ... or

622

the key-bar is provided with strips of ivory, the lowest strip having a notch into which spring O falls when the key-bar has arrived at its highest position. Spring O extends from metallic rod L, which latter is at one end supported by an insulating post M, while its other end has a metallic connection N with saddle-bars F. The edge of spring O works against the side of the lower part of key-bar a^1; and while it is in contact with one of the ivory strips, the electric current will be broken, but when in contact with the metal, it will be closed. The relative lengths of the ivory strips and the metal between them serve to produce a character indicative of a letter of the alphabet, as in other telegraphic registers.

The inventors say: We are aware that it is not new to close and break an electric circuit by means of a moving piece of metal, having strips of ivory or other electro non-conducting material inserted within it, and made to operate against a metallic spring connected with one pole of an electric battery, while the said moving piece of metal is connected with the other pole thereof; therefore, we do not claim such to be our invention, but we do *claim*, in combination with a sliding-key circuit breaker of such description, a friction slider, a metallic bar G, and an insulated stop-bar D, or the equivalent thereof, the whole being made to operate together, substantially as specified.

1622

No. 13,989.—JOHN N. GAMEWELL.—*Improvement in Apparatus for Discharging Atmospheric Electricity from Telegraph Wires.*—Patented August 7, 1855; patented in England, September 15, 1854. (Plates, p. 143.)

The train of wires D passing over ivory studs *c d* forms part of the main circuit. This wire is composed of long pieces *e f* of inferior conductor (for instance iron) represented in strong broken lines, and of short pieces *f h* (represented in strong full lines) of superior conductor (for instance copper). The short pieces terminate in points *h*; *i* is the usual main wire entering the office; the other end connects with one end of a thin sheet of platina, from whose other end a fine platina wire leads to the magnet. The points *h* are in close proximity (but without touching) to the points *l* of a series of superior conducting wires soldered to a copper trough E, to the bottom of which trough copper wires *m* are attached which enter the ground. On opposite sides and at a short distance from the platina plate *j* are placed two copper plates *n n*, insulated by brackets *o*, which carry them and the platina plate. These copper plates are studded all over their inner faces with points *p* of superior conducting metal, which are in close proximity to the platina plates, and they are connected with the trough by copper wires *q*, which are of such form as to yield when the boards A B are adjusted by the screws C.

The principle upon which this apparatus is constructed is, that atmospheric electricity will leap from one conductor to another, but that a galvanic current such as used in the working of the telegraph will not pass through the smallest space without a continuous conductor.

624

connexion for its zinc pole also, to complete its circuit and bring it into action. But this is not the case, as represented in the diagram; the wire H, leading from the zinc pole of the battery Z^1, not being connected with the point H^1 of the break-circuit key S^1, consequently the battery Z^1 is inactive.

The battery Z being connected to the ground-plate *x* by the wire *j*, leading from the ground-plate *x* to the zinc pole of the battery Z, which is connected with the break-circuit key S by the wire H^2, leading from the platina pole of the battery Z to the break-circuit key S, the main wire *d* being in connexion with the break-circuit key S, and the metal standard q^1 and standard *q* being connected with the helices C^1 by the wire d^4, and the helices C^1 being connected to the metal standard q^1 by the wire b^1, and the standard *q* being connected with the metal standard p^1 by the wire a^1 a^1, and the standard p^1 being connected with the helices B^1 by the wire *b*, and the helices B^1 being connected with the metal standard *p* by the wire d^2, and the standard *p* being connected with the break-circuit key S^1 by the main wire d^1; the point H^1 of the break-circuit key S^1 being the terminus of the unbroken connexions leading from the platina pole of the battery Z, and having no ground connexion at the point H^1, consequently the battery Z is inactive also. The point H^1, being the representative of the platina pole of the battery Z, being brought in connexion with the wire H leading to the zinc pole of the battery Z^1, and the platina pole of the battery Z^1 being connected with the ground-plate x^1 by the wire j^1, the circuit is complete, having the zinc pole of the battery Z connected with the ground-plate *x*, and the platina pole of the battery Z^1 connected with the ground-plate x^1. The circuit being now complete, the current passes from the zinc pole of the battery Z, which is connected with the ground-plate *x*, to the platina pole of the battery Z^1, that is connected with the ground-plate x^1, charging and forming magnets at the same time of the helices B^1 and C^1.

The helices B^1 and C^1, being placed near enough to the metal arms B^2 B^3 of the vibrating armature lever, to attract the metal arms B^2 B^3 with equal force, the armature lever is drawn from its perpendicular position ("where it rests, touching the non-conducting points o^1 o^4") against the metal-points o^2 o^3; the metal-points o^2 o^3 being connected by the wires c^4 c^3 with the main circuit d d^1 at the metal standards p^1 q^1.

Ground connexions are formed between the helices B^1 and C^1 through the wires c^4 and c^3, leading from the metal standards p^1 q^1 to the metal points o^2 o^3, the metal points o^2 o^3 *being in contact* with the metal linings *f f* of the armature lever, and the metal linings *f f* in connexion with the metal axles *i* i^1, and the metal axles *i* i^1 in connexion with the metal-standards *k k*, and the standards *k k* being in connexion with the ground-plates w^1 *w* by the wires *l l*, two *separate and distinct circuits* are completed; the batteries Z and Z^1 being separated by the ground connexions, and these ground connexions being complete at *x* and w^1, and at *w* and x^1. The current from the battery Z then passes from the zinc pole that is connected with the ground-plate *x* to the ground-plate w^1, which is now the terminus of the platina pole of the battery Z, which remains active in consequence of the zinc and platina poles having their respective ground connexions at the ground-plates *x* and w^1. The

1623

...surance

...ark

625

current from the battery Z also passes from its zinc pole that is connected with the ground-plate *w*, which is now the terminus of the zinc pole of the battery Z^1, to its platina pole that is connected with the ground-plate x^1; the battery Z^1 also remains active, in consequence of the zinc and platina plates having their respective connexions with the ground at the ground-plates *w* and x^1; the helices B^1 being in the circuit actuated by the battery Z^1, and the helices C^1 being in the circuit actuated by the battery Z. The helices B^1 and C^1 having been previously sufficiently near the metal arms B^2 B^3 of the armature lever, so as to require the power of both helices, B^1 and C^1, to draw the armature lever from its perpendicular position against the metal points o^2 o^3; the power of the helices B^1 not being sufficient in itself for such purpose *without the aid* of the helices C^1, and the power of the helices C^1 being insufficient for such purposes *without the aid* of the helices B^1; but the helices B^1 and C^1 retaining the armature lever in its position against the points o^2 o^3 until the circuit of the battery Z^1 is broken again by separating the point H^1 of the break-circuit key S^1 from the wire H leading to battery Z^1; as soon as this is done, it destroys the attractive power of the helices B^1; and the helices C^1 not being able to retain the armature lever in its position against the points o^2 o^3 by their power of attraction alone, the weight of the armature lever at the arm B^3, being equivalent to a spring in this case, causes it to leave the metal points o^2 o^3, and resume its perpendicular position against the non-conducting points o^1 o^4; thereby breaking the ground connexions with the ground plates *w* and w^1, and thereby enabling the helices B^1 and C^1 to assist each other as soon as the point H^1 comes in contact with the wire H, making the connexions between the batteries Z and Z^1 as heretofore described.

S is a coil-spring connected with the armature lever, and so adjusted as to draw back the armature lever against the points o^1 o^4 with a force greater than the attraction of either electro-magnet, but less than the sum of their attractions.

Claim.—The mode described of dividing a long line of telegraph into two sections, and transmitting signals from either section to the other, viz: by means of two receiving electro-magnets at an intermediate station, the helices of which are interposed in the line of main wires, one after the other; said magnets acting in conjunction upon an armature lever, or its equivalent, which, by the motion produced by the attraction of the magnets, makes contact of a ground wire or wires with the main line between the two helices; and the said receiving electro-magnets and armature lever being combined with a spring, or other equivalent force, adjusted so as to draw back the armature lever with a force greater than the attraction of either electro-magnet, but less than the sum of their attractions, or any combination of apparatus operating in substantially the same manner.

1624

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

Fifth. I claim the arrangement of the arm *f*, the arms *a* and *b*, or their equivalents, for the purpose of effecting electric communication alternately with the time magnet D, and the striking magnet H, essentially as described.

No. 20,970.—William Whiting, of Roxbury, Mass.—*Improved Electro-Magnetic House Alarm.*—Patent dated July 20, 1858.—The claim and engravings will explain the nature of this invention.

Claim.—The improved house alarm described, consisting of a combination of the following elements, viz: First, a series of electro-magnetic circuits B; second, an indicator B, to designate the respective circuits; third, an alarm apparatus; fourth, the window or door springs *i*—the whole operating as set forth to sound the alarm, and indicate the circuit attacked.

No. 19,042.—George M. Phelps, of Troy, N. Y.—*Improvement in Electro-Magnetic Speed Governor.*—Patent dated January 5, 1858.—This improvement consists in causing any suitable governor or indicator, of variable motion, to regulate the speed of the machine or instrument with or by which such governor or indicator is driven, by making the governor or indicator control and regulate, by closing and breaking the electric circuit, the motive action of a current of electricity upon an electro-magnet, or other electro-magnetic device arranged to work, or to regulate the action of whatever contrivance or mechanism is employed to change the speed of the machine.

Claim.—Causing a centrifugal or other suitable speed governor to regulate the motion of the machine or instrument with, or by which such governor is driven, by making the governor close and break a current of electricity, which operates an electro-magnetic contrivance, arranged to work [whatever device or mechanism is employed, to change the speed of the machine or instrument, as described.

No. 22,347.—E. G. Chormann, of Philadelphia, Pa.—*Improved Ellipsograph.*—Patent dated December 21, 1858.—E is a semi-circular plate, having formed in it a curved slot *b*, concentric with the pin *p*. Said slot is to accommodate a thumb screw *a*, which projects through it from the arm D, and by which the said arm D is retained at any point in its arc of motion.

Claim.—I *claim*, first, constructing the shoes *i* and i^1 in two parts swiveled together as specified, in combination with the adjusting screw shaft d^1, the whole arranged and operating as described.

Second. In combination with the screw adjustment of the movable shoe, the arrangement of the pencil or dry point carrier *f*, on a screw shaft C, in order that the relative lengths of the axes may be readily varied to the smallest extent, or a series of concentric ellipses be drawn varying very slightly in size.

Third. Arranging the drawing apparatus with a vibrating adjustable arm D, on a vertically adjustable arm B^1, as described for the purpose set forth.

163 (1)

No. 20,706.—Samuel Gardiner, jr., and Levi Blossom, of New York, N. Y.—*Improved Electric Signal Lights.*—Patent dated June 29, 1858.—The claim and engravings will explain the nature of this invention.

Claim.—The combination of a platinum coil C, or its effective equivalent, which is illuminated by electricity with a transparent signal lantern B; said combination being effected by arranging the coil C within the lantern B upon two conducting wires D D, which are connected with an electro-galvanic battery.

No. 21,656.—Jacob D. Custer, of Morristown, Pa.—*Improvement in Fog-Signal Machines.*—Patent dated October 5, 1858.—The nature of this invention consists in furnishing fog-signal machines, magnetic telegraph registering machines, &c., with a spur wheel and pinion-retaining power, on the reaction principle which shall be convenient to graduate so as to keep the proper balance of power in time of winding, so that the machine shall not lose or gain, and which retaining power shall be convenient to oil, and as durable as any other parts of the machine; the spur-wheels and pinions all being on the outside where they can be made as strong as desired.

The inventor says: I *claim* the application to fog-signal machines, magnetic telegraph registering machines, &c., of my improved retaining power, including pinion I, wheel J, shaft K, pinion L, wheel Q, click spring *o*, and balance piece H, when arranged and combined as above described, to form an adjustable and durable retaining power, substantially as set forth.

163 (2)

No. 21,688.—Henry Maule, of Philadelphia, Pa.—*Improvement in the Mode of transmitting Magnetic Signals on Railroads.*—Patent dated October 5, 1858.—The claim and engravings explain the nature of this invention.

Claim.—Securing to a railroad a series of conducting rails independent of those of the track, and placed in pairs, one pair being disconnected from the next pair throughout the series, and each pair of conducting rails being arranged to connect with a galvanic battery on the train by the devices described, or their equivalents, one rail of each pair to one pole, and the other to the other pole of the said battery, and the latter being connected to any suitable indicating apparatus situated on the train as set forth and for the purpose specified.

No. 20,402.—William Boyd, of Washington, D. C.—*Improved Mechanism for Operating Semaphoric Signals.*—Patent dated June 1, 1858.—The nature of this invention consists in the combination and arrangement of parts for actuating three conical flags stretched on frames, their colors being red, white, and blue. Each can be moved irrespective of the others by means of a pulley and cord, or their equivalents, and each moves on its axle independent of the action or movement of the other two flags. By means of a sliding pole working in grooves of a frame the flags can be hoisted and lowered at pleasure.

The inventor says: I do not claim broadly signalizing by revolving signs or flags, whose position represent certain figures, letters, or numbers.

But I *claim* the particular mechanism, described and shown, for operating such signs or flags when combined and arranged substantially as set forth.

of a circuit-changer with different circuits of conducting wires which are included a number of street lamps, in such a manner that the lamps in one circuit only may be lighted simultaneously by means of the battery current.

Second. The combination of connecting wires with devices for operating by electricity such a circuit-changer at a station remote from the operator.

Third. The arrangement of the magnet A, the brass plate C, the lever D, and the pawl E, substantially as and for the purposes described.

No 19,460.—Archelaus Wilson, of Boston, Mass.—*Improved method of lighting Gas by Electro-Galvanic Batteries.*—Patent dated February 23, 1858.—The circuit of the battery F being closed, the coils E are rendered magnetic, and the armature G is drawn towards them as far as allowed by the regulating nuts on the pin S; this vibrates the rods O and brings the thin platina wire *o* immediately over the openings in the tip *g*, at the same time the points L are brought into contact with the elastic strips K, which are connected with the two poles of the battery I, and the circuit of this battery is closed, by which the wire *o* becomes heated and ignites the gas as it escapes from the tip.

The inventor says: I *claim* combining with a gas or other burner a vibrating electric conductor, substantially as and for the purpose specified, so that after producing ignition the conductor shall be removed from the flame, substantially as described.

And I also claim the employment of the motive power of an electro-magnet with the combined vibrating electric conductor and burner, substantially as described.

163 (4)

No. 19,170.—Lewis Troost, of Mobile, Alabama, assignor to John A. M. Battle, of Mobile, Alabama.—*Improved Method of Registering the speed, back and forward, and distances passed over by Railroad trains by means of Electro-Galvanic Batteries.*—Patented in England June 15, 1857; patented in France June 18, 1857.—Patent dated January 19, 1858.—The claim and engravings explain the nature of this invention.

The inventor says: I wish it to be particularly understood that I do not confine myself to the use of any of the particular mechanical devices described, nor to the use of any particular marks or characters in the several registrations, as such may be varied and modified without departing from the principle of my invention.

But I *claim*, first, the method described of recording the performance of a railway train on its journey by the combination of a registration of time, and one or more registrations of distance, such registrations being made in lines parallel with or contiguous to each other, to show by comparison with each other the speed, movements, and stoppages of the train, substantially as specified.

Second. The indication of the backward movements of the train by a registration of a different character to that of the forward movements, but in the same relation to the registration of time, so as to show the time occupied and the distance passed over in backing, and

No. 19,819.—Oren White, of Racine, Wisconsin, assignor to Henry C. Janes, of said Racine.—*Improvement in Lightning Conductors.*—Patent dated March 30, 1858.—The claim and engravings will explain the nature of this invention.

The inventor says: I *claim*, first, a lightning conductor consisting of iron wires enwrapped by sheet copper, for the purpose of increasing the strength and the conducting power of the rod without materially lessening its flexibility or greatly increasing the expense of manufacture, as set forth.

Second. The sheet metal joint or clutch L, for connecting the additional rods or points to the main rod, as described.

No. 20,916.—Victor Schrage, of Cincinnati, Ohio.—*Improved Device for Securing Lightning-Rods.*—Patent dated July 13, 1858.—The nature of this improvement consists in the combined arrangement of a spring *d* with the insulator *a*, with which the rod J is attached and detached with the insulator without having to slip the insulators over the ends of the rods in attaching the rods to buildings.

The inventor says: I am aware of other attachments being made for the same purpose, and therefore do not broadly claim attaching and detaching rods after this manner.

But I *claim* the spiral spring *d* as constructed and arranged to the insulator *a* in the manner and with the means represented for the purposes described.

163 (3)

No. 21,905.—Elkanah C. Rogers, of Boston, Massachusetts.—*Improved Method of Insulating and Supporting Lightning-Rods.*—Patent dated October 26, 1858.—The insulator cap, as shown in the engravings, is cylindrical in form, and made hollow to receive an insulating cylinder E, made of glass, wood, or other suitable material, by which the cap may be electrically insulated from the shank, or part F, which serves to support it. The supports of the two insulators D D^2 are shown as sustained in position by screws *f*.

The inventor says: I *claim* making the insulator cap *c* with the adjustable or turning loop *a* applied to it, and arranged so as to operate substantially as described.

I also claim combining with the rod, or conductor, an adjustable rest G applied to it and the insulator cap, substantially in the manner and so to operate as specified.

I also claim combining with or arranging in the cap *c* of the insulator, and with respect to the insulating material, an annular ring L, applied substantially in manner and for the purpose set forth.

No. 22,188.—N. N. McLeod, of St. Louis, Missouri.—*Improved Supporting Insulator for Lightning-Rods.*—Patent dated November 30, 1858.—This invention involves no new principle in insulation, but consists in providing a more efficient, economical, and convenient means of securing the rod to the building, or rather in securing the rod to the insulator and the insulator to the building.

The inventor says: I *claim* so cutting the groove in the edge of the glass as to form the elliptical body, shown at A^1, whereby the insulator is attached to the building in the manner described.

And I also claim the combination of the two straps *d d* with the glass and with the pointed conductor, constructed and arranged substantially in the manner set forth for the purpose specified.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

,610.—ERNEST OTTO POHL, of Philadelphia, Pa.—*Improved method of enabling Railroad Trains to Telegraph their own Passings at certain stations.*—Patent dated Janu- 1859.—The object of this invention is to enable the operatives and employés at the other stations on the road and on moving trains to know the whereabouts of trains and between certain points whether the same be approaching any station or train or y from it; to apprise the engineers, &c., of trains of the situation of each tunnel, which, or dam, by an electro-magnetic apparatus acting reliably of itself.

—The use of a self-acting electro-magnetic railway alarm telegraph, acting reliably without the necessity of human intervention, and arranged and operating in the nd for the purposes substantially as described. 166(1)

,739.—WILLIAM H. JOHNSON, of Springfield, Mass.—*Improved Telegraphic Cable.*— ted October 11, 1859.—In this invention *a* is the tube or conductor, *b* a coating of ha which surrounds it; over this are placed the wires *c*, which lie parallel to the e tube, and are held in position during the construction of the cable by a thin wire is wound spirally around them; the outer coating *f* of gutta percha, is then applied he whole in one solid mass. 166(2)

—An electric telegraphic conductor, constructed in the manner and for the purpose

,717.—MOSES G. FARMER, of Salem, and WILLIAM F. CHANNING, of Boston, Mass. *Electro-Magnetic Fire-Alarm Apparatus.*—Patent dated March 8, 1859.—The claim ing will explain the nature of this invention.

ventors say: We *claim* the independent keys D E F, with their pins *d e f*, in com- with the rack A, and a means of liberating the rack, for the purpose set forth.

We also claim the arrangement of the segments on the circuit wheel, in combina- springs, or their equivalents, for throwing the electric current successively on to cuits.

We claim the double circuit wheel, or its equivalent, for the purpose of completing pping an electric circuit at both ends, essentially as set forth. 166(3)

,904.—MOSES G. FARMER, of Salem, Mass., assignor to WILLIAM F. CHANNING, of Mass.—*Improved Electro-Magnetic Fire-Alarm Apparatus.*—Patent dated February —The claim and engraving will explain the nature of this invention.

—The combination of two or more key-boards H C D E, or fire-alarm strikers, con- and operating substantially as described, with one or more electro-telegraphic alarm , in the same closed electric circuit, or independent closed electric circuits, by means anism that will make and break a circuit, as shown and described. 166(4)

,151.—ANDREW TURNEY, JR., of Fairfield, Conn.—*Improvement in Laying Sub- Telegraph Cables.*—Patent dated August 16, 1859.—The claim and engravings explain ure of this invention. 166(5)

—The construction and use of an apparatus consisting of two hollow cylinders A with longitudinal joints or hinges *a*, and two disks or flanges E and F, set obliquely to iders, and a guide or regulating disk G, to be attached to a telegraph cable, while the being submerged, to check the rapidity of the sinking and to afford a constant strain direction of the vessel which is paying out the cable, to avoid kinks or festoons, the whole is constructed, arranged, and made to produce the result substantially as ed.

,272.—HEINRICH SOLTMANN, of New York, N. Y.—*Improved Electro-Magnetic Medi ,*—Patent dated March 15, 1859.—The claim and engravings will explain the this invention. 166(6)

ventor says: I do not claim the vibrating armature, neither do I claim the glass in itself, as a regulator of electrical currents, but I *claim* the arrangement of the spring armature and the connections therefrom, in combination with the key S, and acting as specified, to throw the shock off the person, or repeat the same, as set

laim the regulating cylinder *t*, constructed as specified, in combination with the electrical machine, fitted and acting in the manner and for the purposes set forth.

,200.—FRANCIS J. BRIDGES, of New York, N. Y.—*Improved Submarine Telegraph* Patent dated March 22, 1859.—The conductor *a* is covered with a suitable electric *c*, rcha,) and this is overlaid with a braided coat *g* of hemp, flax, cotton, or wire, after ter of a whip or curtain cord. 166(7)

—The braided or plaited coat, covering, or layer for conductors, cords, or cables ic telegraphic purposes, as set forth.

,672.—MOSES G. FARMER, of Salem, Mass., assignor to WILLIAM F. CHANNING, of Mass.—*Improved Electro-Magnetic Apparatus for setting Water-Engines in Motion.*— ated January 11, 1859.—The nature of this invention consists in the application of o-magnetic escapement to the cock controlling the supply of water of a water engine, pawl or detent arresting the motion of said water engine in such manner that it may motion and stopped by the agency of electricity directed to it through conductors distance. 166(8)

nventor says: I *claim*, first, the combination of an electro-magnetic escapement with r water-valve *k*, and with the detent Q of a water-engine, separately or conjointly, purpose of controlling its motion from a distance, especially in its application to a fire- legraph.

d. I claim the employment of two or more arms, of progressively increasing weight, nation with a water-engine and with an electro-magnet, or its equivalent, for the of releasing machinery, as set forth; the first of the weighted arms being liberated by o-magnet, whilst the last one of the series releases the machinery, each of the weighted ing returned to its normal position by the action of the water-engine.

,023.—MOSES MARSHALL, of Lowell, Mass.—*Improved Device for Making Electro- Currents Constant or Intermittent.*—Patent dated August 9, 1859.—This invention n obtaining both the single and double electric current in the same machine, and it from the double to the single, or from single to the double. 166(9)

—The spring *g*, so constructed and arranged as to be insulated from or connected to ends of the helical wires by springs *l* and *k*, or otherwise, essentially in the manner he purposes fully set forth.

,214.—W. H. BURNAP and JOHN A. BRADSHAW, of Lowell, Mass., assignor to W. G, aforesaid.—*Improvement in Electro-Magnetic Machines.*—Patent dated March 8, he claim and engraving will explain the nature of the invention.

—Applying the oscillating balance wheel D with its shaft *j*, in line with, but detached ck shaft *g*, or its equivalent, carrying an arm *f*, which derives a positive oscillating from the train of gearing, driving the magnetic-electro machine, and connecting *k*, which is attached to said balance wheel, with the so arranged moving arm, lly as and for the purpose specified. 166(10)

,—J. S. DAVISON, of Cranberry, N. J.—*Improved Telegraphic Cable.*—Patent mber 27, 1859.—This invention consists of a series of loose strips of copper wire ched on, or otherwise united to the coil, and which fill up the space in the inside hs that when the coil stretches, each of said strips assumes a longitudinal sliding as the coil, by being stretched, diminishes its diameter, said strips are brought ter, and the current passes through without interruption.

Arranging a series of loose metal strips *a* in a coil A, or its equivalent, substan- d for the purpose described. 166(11)

167.—ARCHELAUS WILSON, of New York, N. Y., assignor to D. A. HEALD, A. L. n, C. T. MARTIN, and H. A. HUNLBURT, of said New York.—*Improved Mode of ing by Electricity.*—Patent dated August 16, 1859.—The claim and engravings ex- nature of this invention. 166(12)

ventor says: I *claim* combining, with a gas or other burner, metallic points ap- ; but not coming in contact with each other, substantially as described; but this I in combination with the inductive apparatus, substantially as described, for the f effecting ignition by means of the electric discharge or spark, as specified.

laim combining with a galvanic battery, an inductive apparatus or coil, metallic d an electro-magnet, for the purposes specified and substantially as described.

,145.—CHARLES A. SEELY, of New York, N. Y.—*Improved Method of Protecting al Electrical Machines from Moisture.*—Patent dated December 13, 1859.—The claim ravings explain the nature of this invention. 166(13)

ventor says: I *claim* inclosing an electrical machine in a covering or box, which is r quite air tight; and, by means of an absorbent moisture, preserving the air about line nearly uniformly dry.

claim the insulating covering or box, substantially as described and for the pur ecified.

,753.—GEORGE F. MILLIKEN, of Somerville, Mass.—*Improved Electro-Magnetic Alarm.*—Patent dated October 11, 1859.—The claim and engravings explain the nature invention.

nventor says: I *claim* the combination of a galvanic battery, an electric circuit, a breaker, operated by a window or door, with a step by step indicator, substantially as ed. 166(14)

in causing a window or door automatically to prevent any alteration upon the circuit the closing of the window or door until it is nearly closed, in any manner, substantially ribed.

in the use of the armature J for the double purpose of regulating the movements of the and setting in motion the alarm apparatus.

No. 23,697.—WILLIAM G. OLIVER, of Buffalo, N. Y.—*Improvement in Applying Electricity in Dental Purposes.*—Patent dated April 19, 1859.—The claim and engraving explain the nature of this invention.

Claim.—The inventor says: I am aware that electricity has been applied as an anæsthetic agent in dental operations, and do not, broadly, claim the application of such an agent.

But I claim the employment, in producing local anæsthesia in dental operations, of an apparatus in which only non-metallic conductors are brought in contact with the parts operated upon, as set forth. 166(15)

No. 25,950.—EDWARD C. CLAY, of Malden, Mass.—*Improved Electro-Magnetic Burglar's Alarm.*—Patent dated November 1, 1859.—The claim and engravings explain the nature of this invention.

The inventor says: I *claim* the combination, in an electric burglar's alarm, of a galvanometer, with a resistance coil and an automatic switch, for the purpose of indicating the point where a burglar is attempting to effect an entrance, substantially as described.

I claim, also, the combination, in an electric burglar's alarm, of a galvanometer and a bell, with suitable mechanism to ring it, for the purpose of simultaneously giving an alarm and of indicating the place of attack.

I claim, also, the use, in a burglar's alarm, of a regulating coil, in combination with the resistance coils, substantially as described, for the purpose of maintaining a constant relation between the strength of the current and the varying resistance of the circuit, when the respective resistance coils are included. 166(16)

No. 22,733.—WILLIAM W. KARSHNER, of Cincinnati, Ohio.—*Improvement in Electric Bathing Apparatus.*—Patent dated January 25, 1859.—In the engravings, C is the positive pole of the battery connected with the bathing-tub, *d* is the negative pole connected with the patient's feet, *insulated from the tub a*, *g* is a non-conducting insulating substance, *h* the conducting foot-plate from the bathing-tub, *f f f f* supporting bands attached to the sides of the bath-tub *a*. 166(17)

The inventor says: I *claim* first, the suspending non-conductor bands *f f f f*, the conducting foot-plate *h* insulated from the bath-tub by the non-conducting substance *g*, all substantially as set forth.

Second. I claim the combined use of the above described non-conducting bands *f f f f*, the conducting foot-plate *h*, and the non-conducting substance *g*, or their equivalents, for the purpose of administering an electric bath for therapeutic purposes, as described.

No. 25,411.—WILLIAM H. HORSTMANN, of Brooklyn, N. Y.—*Improved Mode of Manufacturing Telegraph Cables.*—Patent dated September 13, 1859.—The claim and engravings explain the nature of this invention. 166(18)

The inventor says: I *claim* constructing the cable by the apparatus, substantially as described, consisting of the reservoirs, wrapping apparatus, &c., or their equivalents, as specified.

I also claim the final reservoir *m*, for coating a telegraph cable after it has passed all the other apparatus, and before it has entered the water or ground, constructed and applied substantially as specified.

I also claim the manufacturing of the cable, substantially in the manner described, at the time it is laid, so as to perfect it and at once launch it into the place where it is to remain, whereby I avoid all the chances for injury and imperfections arising herefrom, growing out of stowing and handling the cable after it has been made, as heretofore has been done.

No. 25,532.—GEORGE B. SIMPSON, of Washington, D. C.—*Improved Electrical Heating Apparatus.*—Patent dated September 20, 1859.—The claim and engravings explain the nature of this invention. 166(19)

The inventor says: I *claim* the insulation of the metallic coil or helical electrode, which I call an electro-heater, and the successful generation of heat by passing currents of electricity over a coil or coils of platina, or other metallic wire, resting on and supported by a non-conducting electrical base, or encased in metallic tubes, or open vessels insulated with any of well-known substances non-conducting of electricity, as described.

No. 11,761.—SPENCER MOORE.—*Improvement in the Feeding-Hoppers of Thrashers and Separators of Grain.*—Patented October 3, 1854.

The improvement and claim is confined to the employment or use of the vibrating or swing-blind G, guard-board H, and shoulder *x*, arranged in the manner and for the purposes described.

The manner of arrangement of the parts claimed is clearly shown in the drawing. The purpose alleged is to prevent the dust and grain from passing upward in the face of the operator, the blind G carrying the dust, and board H causing the grain to pass through the machine.

The cylinder, concave, and all other parts of the machine, are disclaimed. 166(20)

No. 11,762.—JOHN MABIE.—*Improved Pen and Pencil Case.*—Patented October 3, 1854.

The nature of the invention consists in the arrangement for operating the pencil-slide by means of two tubes, having spiral grooves or slots cut in them in reverse directions, the tubes being placed one over the other, the inner tube stationary and the outer tube movable.

Operation.—The pen-slide C is shoved out and in the case by the rims on band D, as usual, and the pencil-slide E is forced out from or drawn within the case, by turning the upper portions G H of the case, which are connected to the tube F. The tube F, as it is turned, forcing the pin *e* along the spiral slot *c*, in the upper part of the stationary tube B, and either up or down according to the direction in which the tube F is turned.

No. 11,763.—WILLIAM C. MCREA.—*Improvement in Railroad Draw-Bridge and Switch Telegraph.*—Patented October 3, 1854.

Without giving a minute description of this invention, which would occupy too much room for this Report, it will be sufficient for an understanding of its general features to give its nature and operation in connexion with the accompanying drawing.

The nature of the invention consists in the arrangement of a galvanic circuit, in such manner that the engineer, conductor, or passengers of a train of railroad cars may, upon the approach of the train to a draw-bridge or switch, be advised of the position of the draw-bridge or switch in time to prevent danger in case the bridge or switch are so placed that the train cannot with safety pass; the method employed being to connect one pole of a galvanic battery, by a wire, with a portion of the railroad track which is insulated, by breaking the continuity of the rails, and supporting the same between the break on some non-conducting substance, while the wire from the other pole connects with the ground, the connexion of the main wire being kept up and broken by the closing and opening of the bridge. The signal is given by the completion of the circuit by the passing of wheels, connected with an electro-magnet on the car, over the insulated portion of the track. The operation is as follows:

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

No. 13,162.—ROBERT D. DWYER.—*Improvement in Attachments for Lightning-Rods.*—Patented July 3, 1855. (Plates, p. 166.)

The lightning-rod is passed through the holes *g g* and notch *d*, when the respective parts of the rod-holder (*e i f* and A) will be securely fastened together, and the rod be securely fastened to them.

Claim.—Constructing a lightning-rod holder of but two parts, of such a form that the lightning-rod will connect them to each other, at the same time that it combines itself securely with them, substantially as represented and set forth.

No. 12,855.—CHARLES T. CHESTER.—*Improvement in Connecting Clamps for the Plates of Galvanic Batteries.*—Patented May 15, 1855. (Plates, p. 141.)

Figure 1 represents a top view, and figure 2 a perspective view. The clamp C^1 C^2 is used to insert a duplicate plate in the battery fluid, while the other is removed. Thus C^1 is placed upon the insulating rod A, (as shown in dotted lines in figure 1,) and held in that position by screw *e*, while the auxiliary zinc-plate Z^2 is screwed into clamp C^2 so as to dip into the same acid into which Z dips. Z is then removed or again replaced, and the battery current will not have been disturbed.

Claim.—The arrangement herein described for fastening and connecting the battery-plates, viz: Clamps B, of brass or such other metal as will alike answer the purpose of the arrangement, attached to the insulating bar A of wood, commonly used in Smee's battery, in such manner that the battery-plates Z P clamped to them shall be separate from the wooden bar, and the solution be prevented from finding its way by capillary attraction to the wood, and which shall by their form allow of an easy removal and replacement of each separate plate, without the disturbance of any other part of the battery arrangement, as herein above set forth.

No. 23,618.—ORRIN D. VOSBURG, of Boston, Mass., assignor to Himself and EDWARD W. SERRELL, of Greenfield, Mass.—*Improved Method of Arranging Galvano-Electric Helices for Magnetizing the Driving Wheels of Locomotives.*—Patent dated April 12, 1859.—The nature of this invention consists in applying a helix *b* of wire around the lower part of the wheel *a*, in such a manner that the lower part of the wheel is converted into an electro-magnet, the wheel revolving within said helix. The said helix producing magnetism in that part of the periphery of the wheel that is in contact with the track, enabling the locomotive to perform much more labor, without increasing the weight of the said engine or causing so much wear or strain upon the track

The inventor says: I do not claim, broadly, the application of electricity or magnetism, to cause adhesion of wheels of locomotives; neither do I claim a helix, applied to a locomotive wheel, as this has before been done, but, it is believed, proved nearly or entirely valueless; whereas, in my invention, I have succeeded, by the use of a curved helix, as set forth, in obtaining the point of the greatest magnetic effect at the point of contact between the wheel and the track, therefore I *claim* a curved helix applied to the wheels of a locomotive engine, in substantially the manner specified, whereby the point of greatest magnetic effect is the point of contact between the wheels and track. And, in combination with the helix aforesaid, I claim adjusting the helix in the manner and for the purposes specified.

No. 22,922.—EDWARD MAYNARD, of Brooklyn, N. Y., assignor to Himself, R. K. SLAUGHTER, and THOMAS E. PURDY, of said Brooklyn.—*Improved Method of Covering with Fibrous Material Submerged Spiral Electrodes for short Distances.*—Patent dated February 8, 1859.—The claim and engraving explain the nature of this invention.

Claim.—Constructing submarine telegraph cables of metallic conductors, twisted in helical form, in combination with layers of cords or strings, parallel, or nearly so, with the axis of the cable, that are confined together by serving or winding, and are saturated with water-proof non-conducting material, as set forth.

No. 11,415.—ARI DAVIS.—*Improvement in Magneto-Electric Machines.* Patented August 1, 1854.

This invention consists in so arranging the machine as to make only one conducting spring (*k*) necessary; and instead of making the journal *m* of the shaft *l* metallically continuous with it, it is made of a separate piece of metal, and insulated from the shaft.

Claim.—I claim as my invention the insulation of the journal of the shaft, in combination with the single conducting-spring in electro-magnetic machines, as herein described.

No. 10,496.—JOHN M. BACHELDER and MOSES G. FARMER.—*Improvement in the mode of making Battery Connexion with an Electro-Magnetic Coil on the Travelling Carriage of a Telegraphic Register.*—Patented February 7, 1854.

The battery wires P^1 N^1 are run along a series of bars, *y y y*, jointed together in the manner of what is called the lazy tongs, one end of the series being jointed at a^2 to the fixed base-board of the whole machine, and the other to the travelling carriage B, a bottom view of which is seen in the engraving, and which is designed to carry the marking apparatus, and cause it to traverse the length of a cylinder wrapped with the paper upon which the message is to be written.

Claim.—The combination of the system of progressive levers with the battery wires, the base-board, and movable platform, so as to operate substantially as specified, and for the purpose set forth.

No. 11,539.—TIMOTHY U. WEBB.—*Improved Mode of Insulating Lightning Rods and securing the Insulators.*—Patented August 15, 1854.

The improvement in the construction of insulators which I claim, consists in making the inner surface convex, as represented at A C. This, with the outer conformation represented by the drawing, presents a circular surface both inside and out, making the thickness of the insulator uniform in all parts; a conformation which combines the greatest strength with the greatest economy of material, and, by having the least possible amount of surface in contact with the rod, and opposing the least possible resistance to the passage or expansion of air produced by the lightning, renders less liable to be broken by the lightning or any other cause.

Claim.—I do not claim making the outside of the insulator with a horizontal groove in the middle and a flange on each side of the groove. But what I do claim is, making the inner surface convex, in the manner and for the purpose specified.

No. 24,459.—THOMAS HALL, of Boston, Mass.—*Improved Electro-Magnetic Machine.*—Patent dated June 21, 1859.—This improvement relates solely to the connection of the battery and the machine, by means of an elastic bar or spring, and the movable or switch connec-

by which the machine is started or stopped at pleasure, both the battery and the chine being inclosed in the same box.

m.—The combination of the spring connecting bar H and the switch O, placed between achine and the battery, and operating with reference to each other, substantially as

No. 11,552.—J. BURROWS HYDE.—*Improvement in Machinery for Coating Telegraph Wires.*—Patented August 22, 1854.

I am aware that it has been attempted to coat wires with gutta percha by means of a cylinder, to which is fitted a piston, and having holes through one side of the size of the wires, on the other side the holes being of the size of the wires when coated; and the coating being applied by the pressure of the piston while the gutta percha is in a melted state, by heat applied externally to the cylinder; and, therefore, I do not claim broadly the coating wires by drawing them through a vessel having holes on opposite sides.

Claim.—But I do claim the employment of the moulding kettle, with or without the melting kettle, provided and combined with an aperture covered with a disk of India rubber or its equivalent, having a hole or puncture in the centre which admits the wire and prevents the escape of the contained composition, and with the nozzle or die for determining the thickness of coating of compound to be put on the wire, substantially as and for the purpose specified.

Also, I claim the use of the cone (which determines the thickness of the coating) in such manner as that the outer end or nozzle thereof shall, when in use, terminate in and be covered by water, so that the covered wire shall emerge from the cone directly into or while the latter is in the water, through which the wire will then pass, as hereinbefore described, for the purpose of coating the composition. And, finally, I do not claim the use of the apparatus solely for the purpose of covering telegraph wires, but it may be applicable and useful for other equivalent uses, all of which I claim.

No. 26,557.—GEORGE W. BEARDSLEE, of Flushing, N. Y.—*Improved Magneto-Electric Machine.*—Patent dated December 27, 1859.—This invention consists in the employment of two oppositely vibrating conductors, insulated from each other and simultaneously operated by the alternately reversed currents from a magneto-electric machine, which conductors vibrate between two sets of conductors, each set of which is connected with one of the terminal wires of a magneto-electric machine, so that each vibration shall break the connection between one of the vibrating conductors and one of the terminal wires, and establish the connection with the other terminal of the machine, and *vice versa* with the other vibrating conductors.

Claim.—The mode of operation of the pole changer, by which the current is made to travel in the same direction, substantially as described.

No. 26,558.—GEORGE W. BEARDSLEE, of Flushing, N. Y.—*Improved Magneto-Electric Machine.*—Patent dated December 27, 1859.—The claim and engravings explain the nature of this invention.

The inventor says: I *claim* the compound magnet described, consisting of radial poles arranged about a common centre and connected together at their inner ends, substantially as and for the purpose described.

I also claim forming such a compound magnet with radial poles connected at their inner ends by cutting out the radial poles and connecting rings from a single plate, substantially as and for the purpose specified.

I also claim, in combination with rotating magnets, the insulated rings to which the terminal wires of the helices are connected, substantially as described.

[illegible] of Mason City, Mo.—*Improvement in* [illegible]

No. 12,050.—GAETEN BONELLI.—*Improvement in Operating Looms by Electricity.*—Patented December 12, 1854. Patented in France August 15, 1853.

Claim.—The application of electricity, or of electro-magnets, to power-looms, in order to raise or to keep in an elevated state the hooks and headles, in the required order to form the design or pattern of fashioned stuff, such as shawls, carpets, ribbons, etc., as described.

Also, the various means of making such designs on metallic surfaces by means of an insulating material; and the use, for this purpose varnish, of weavings or paper painted or colored with metallic stances, of paper cut out, or pinked, or pierced.

No. 25,710.—THOMAS C. AVERY, of New York, N. Y.—*Improved Galvanic Ba* Patent dated October 11, 1859.—This invention consists in amalgamating the outside zinc cups by an amalgam very little susceptible to any action from the sulphuric a thus leaving the inner surface of the zinc to be acted upon by the nitro-sulphuric rectly opposite to the surfaces of the platinum, to prevent local action in consequence difference of degree of intensity of the exciting fluids on the external and internal the zinc.

The inventor says: I *claim*, first, the use of the insulating amalgam, substan scribed, in combination with the surfaces of the zincs of galvanic batteries for te purposes, for obtaining the results before set forth.

Second. I also claim the use of two or more independent strips of platinum in struction of galvanic batteries for telegraphic purposes, as an improvement on the G Battery, for the purpose of obtaining the results before set forth, but irrespective of use in combination with the insulated amalgamated zincs before described.

No. 25,503.—EUGENE GRENET, Jr., of Paris, France.—*Improved Galvanic Battery.*—P dated September 20, 1859.—The claim and engravings explain the nature of this invent

The inventor says: I *claim*, first, the method of agitating the exciting liquid of a g battery by forcing a current of air through it, in the manner and for the purposes sub ually as set forth.

Second. Arranging and constructing the zinc and charcoal elements, in combination the exciting fluid, substantially in the manner described, whereby they may be operate one by the other, substantially as set forth.

Third. Forming the charcoal elements by pressing into or on to the surface of pla lead, when yet in a semi-liquid state, small pieces of charcoal, in the manner substanti described.

No. 25,016.—STANISLAS HOGA, WILLIAM PETER PIGGOTT, and SEPTIMUS BEARDM Middlesex county, England.—*Improved Mode of Generating and Applying Electric C to Telegraphing.*—Patent dated August 9, 1859.—This invention consists in transmitt electric current directly through and by means of the earth or natural body of water the line wire only for the return current.

Claim.—The application to telegraphic instruments of currents of electricity, pr from metals or substances arranged in the earth, or in natural bodies of water, in the and for the properties and relations described.

No. 22,952.—W. W. HOPKINS, of Amelia, Ohio.—*Improved Method of Lighting Ga Galvanic Battery.*—Patent dated February 15, 1859.—In this invention a gas burner is combined with an electro-magnetic seat to control the letting on and shutting off the gas; there is also a certain arrangement of the conducting wires, in which an electro-mag valve is placed, by which a piece of platinum, constituting a part of the same circuit, occupying a position over the burner, is heated by the same action by which the val opened, and so ignite the gas.

Claim.—The arrangement and combination of the hollow permanent magnet A, chamber C, coil F, electro-magnetic valve E, and tube D, as and for the purpose shown described.

No. 22,553.—MOSES G. FARMER, of Salem, Mass.—*Improved Electro-Magnetic Fire-A Apparatus.*—Patent dated January 11, 1859.—This invention consists, first, of a wheel *a*, and the means of actuating it and regulating its motion. Secondly, of the by which the signal indicated upon the circuit wheel is transmitted to the central stati

The inventor says: I *claim* the circuit wheel *a*, and the crank or handle by which actuated, in combination with the key H, and the electro-magnetic circuit, operating manner substantially as set forth, to send a definite signal from a sub-district to the c station.

Second. I claim the method of completing the circuit, when the door of the signal closed, through the springs M and N, as set forth for the purpose described.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

No. 9,097.—Moses G. Farmer, of Salem, Mass.—*Improvement in Telegraphic Machines.*—Patented November 15, 1853.—The claim and engravings explain the nature of this invention.

172(1)

Claim.—The use of a key or circuit breaker, which shall close one circuit before or at the time that it opens another, in connection with an electro-magnet with two sets of helices acting on one and the same armature lever, or two separate electro-magnets operating upon one and the same armature lever, for the purpose of transmitting two messages simultaneously upon a single wire.

No. 22,918.—George Gilmour, of Chelsea, Mass.—*Improvement in Shackles of Telegraph Cables, &c.*—Patent dated February 15, 1859.—In the engraving, A denotes the frame of the shackle, the same being applied at one end with an eye *a* for suspending the apparatus from a rope. At or within the other end of the frame is a friction drum or roller, arranged in the frame and made to turn on an arbor or pin *b* connecting the two sides *c c* of the frame. At a suitable distance from arbor *b* is another arbor or pin *d*, which also extends through and connects the sides and serves to support one or two turning and sliding jaws C.

The inventor says: I *claim* the telegraph cable or rope shackle, as constructed with one or more jaws, and mechanism to operate the same, substantially as described.

I also claim combining either the wing *I* or the knife *m*, or both, with the shackle, so as to operate therewith in the manner and for the purpose or purposes specified.

172(3)

No. 10,480.—Charles G. Page.—*Improvement in Electro-Magnetic Engines.*—Patented January 31, 1854; in England, May 3, 1851.

172(4)

A A represent two horse-shoe electro-magnets of soft iron, acted on by two sets of helices B B, and B¹ B¹; one arrangement of the pair of electro-magnets being shown in fig. 1. Motion is communicated to the electro-magnets by the action upon them of the helices alone, which have not only been discovered to be capable of exerting a great force when made on a large scale, but at the same time present the advantage of a long range of action. The motion of the electro-magnets is communicated, through the connecting-rod I, to a crank and fly-wheel. Upon the shaft of the fly-wheel is a cut-off, as it is termed, by which the current of the battery is alternately thrown upon the coils B B for the stroke in one direction, and upon the coils B¹ B¹ for the return stroke.

172(5)

G G represents soft-iron armatures, the object of which is, by their reaction upon the magnets at their approach to them, to increase the force near the end of the stroke.

Figure 2 represents a coil of heavy copper wire of a square form in section, the object of the square form being to fill the space occupied by the coil as fully as practicable with conducting material.

Claims.—1st. The employment of the axial action or force of the electro-current as a mechanical agent or motive power, for the various purposes herein named; the power being produced by the combination or united operation of a helix or helices, and axial bar or bars of iron, and a cut-off or its equivalent, for regulating the motion of the axial bar or bars, under a general arrangement in principle substantially as set forth in this specification.

2d. The employment of co-operating electro-magnets or armatures, in combination with axial bars, helices, and cut-off, or its equivalent, substantially as herein set forth.

Lastly. The employment of square wires in the construction of helices for electro-magnetic purposes, substantially as set forth.

No. 17,481.—Samuel C. Bishop, of New York, N. Y.—*Improvement in Machines for Covering Insulated Wire with Lead or other Ductile Metal.*—Patent dated June 9, 1857.—A current of water being started through the water-courses entering pipe *m* in the direction of the arrow, and passing down between pipes *c* and *j*, then rising in pipe *c* and escaping through pipe *n*, the wire 5, covered with gum, is entered through tube *c* and pushed down until it enters die F; melted metal is then poured into recess M, and ram E is forced down by hydraulic pressure, whereupon the metal will be forced out of chamber M through the die, and as it leaves the steel point 2, it is closed around the gum with sufficient impingement to draw the wire down as the metal advances, so that each part of the insulated wire in succession is caused to pass the point where the metal leaves the steel point 2, and is therefore at that point exposed to the action of the metal, and this, too, after the proper condition of temperature has been obtained between them.

172(6)

172(7)

Claim.—Causing the metal and insulated wire to move in separate channels toward a die, where they are to be united, and preventing the gum from being heated while it and the lead advance toward the die by a current of fluid passing in a suitable vessel or vessels between the metal and gum to receive and carry off the caloric, all substantially as described.

No. 25,496.—Moses G. Farmer, of Salem, Mass.—*Improved Electro-Magnetic Steam Boiler Gauge.*—Patent dated September 20, 1859.—This apparatus is designed to show the height of water or other liquids in steam boilers and reservoirs, the rise and fall of tides, or the position, within certain limits, of any traversing rod or lever.

172(8)

172(9)

Claim.—The combination of an indicator, an electric circuit or circuits, one or more circuit-breakers, with a float, in any manner substantially as [illegible]

No. 17,355.—William F. Channing, of Boston, Mass., and Moses G. Farmer, of Salem, Mass., assignors to William F. Channing aforesaid.—*Improvement in Fire-Alarm Telegraph.*—Patent dated May 19, 1857.—If a fire is discovered in the vicinity of a signal station *z*, an authorized person opens the signal box, and turns crank a^1 a number of times; the teeth b^1 b^2, on the circuit wheel, depressing the key c^1 c^2, and in this manner break and restore the circuit at definite intervals, the key returning by its own elasticity; this operation causes the electro-magnet and armature of the central station Y, by repeated strokes on *r*, to indicate the number of the district and station whence the alarm designates. The operator at the central station Y, by turning crank A, operates the transmitting apparatus A B, causing the bells at the alarm station V to give the alarm, and, by tapping on key m^1 m^2, the number of the signal station originating the alarm may be transmitted to any of the signal stations *z*.

172(2)

Claim.—1st. The signal system described, consisting of a series of signal stations scattered at intervals through a whole city or town, or any part thereof, and telegraphically connected with a common centre or point, or with each other, by one or more signal circuits, by which means a constant communication may be established and maintained between all parts of a city or town, however extended; and with the centre or centres at which the signal circuit or circuits converge or meet, so that the moment the fire occurs, its existence and locality may at once be known at the centre of the system, and efforts for subduing it properly directed.

2d. The alarm system described, consisting of a series of alarm stations, suitably distributed throughout a whole city or town, or any part thereof, and telegraphically connected with a central station by one or more alarm circuits, by which means a public alarm of the existence and locality of a fire may be given at different points.

3d. In combination with the alarm system, for striking the number of the district upon the alarm bells, the signal system for communicating the number of the station at which the fire occurs to all the signal stations, as well as for communicating an alarm to the central station.

No. 18,022.—John E. Smith, of Troy, N. Y.—*Improvement in Telegraphic Repeaters.*—Patent dated August 18, 1857.—A detailed description of this invention would take up too much space to be given here; the principal features thereof will be understood by reference to the claims and engravings.

The inventor says: I do not claim the opening and closing of the local circuit by magnetism produced by the opening and closing of the main circuit.

But I *claim* the connexion of a battery at each station with the line wire, and with two local cross connexions, in such manner that, by means of the key and relay lever, the cross connexions through the register magnet and the other cross connexions are alternately broken, and the battery thrown upon the main line, and its current caused to operate the relays on the line wire, like a main current, till shut from the line by the relay lever, as described, whereby each battery is made to perform the duty of an ordinary local battery while not wanted on the line wire, and to perform the duty of a main battery while not wanted as a local.

Second. The key placed in the local circuit and constructed, scribed, to open and close the said circuit in two branches, to give two directions to the current over the line wire, substantially as and for the purpose set forth.

No. 18,626.—Edward C. Clay, of Boston, Mass.—*Improved Device in Telegraphic Fire-Alarm Apparatus.*—Patent dated November 17, 1857.—In operating this invention, the operator at the central station, having received the alarm from one of the minor stations, sets the hand F at 60, and the hand E at the number of the district in which the fire may be, (say at 2;) this places the snail K in the position shown in the engraving, when the pin *e* will strike against the second step on the periphery of the snail K, and allow the escapement I to be drawn over by its springs *d*, in the direction of the arrow, just so far that it will require to be fed up two notches by the shaft M, before the pin *e* is again brought into the path of the arm *l*; when this occurs, the revolutions of the shaft are arrested.

Having thus arranged the hands, the operator moves the key U

172(8)

of cutting [illegible] to them, formed in like manner and upon the same plate, but in position at a right angle to the first pair, thus making the other half of the shear, in conjunction with an adjoining punch, substantially in the manner set forth.

No. 18,131.—Samuel C. Bishop, of New York, N. Y.—*Improvement in Insulated Telegraphic Wires, enclosed in Metallic Tubing.*—Patent dated September 8, 1857.—A current of water is started through the water-courses 5, in the directions of the arrows, and the wire covered with gum is entered into the inner tube through cup *l*, and pushed down until it enters die F. The melted metal is then poured into recess M, and the ram E is forced down, whereupon the metal will be forced out of chamber M, and, as it leaves the steel point 2, is closed around the gum with sufficient impingement to draw the wire down.

Claim.—The article above described as a new manufacture, consisting of wire insulated by a covering of gutta percha, or India-rubber, firmly enclosed in a coating of lead or other ductile metal.

No. 18,147.—Henry Hochstrasser, of Philadelphia, Pa.—*Improvement in Attaching Wires to Bell Telegraphs.*—Patent dated September 8, 1857.—The spring C is interposed between the purchase crank A and the machine to be moved, so that if the wires are pulled further than the machine will admit, the strain will come upon the intermediate springs, and not on the cranks.

The inventor says: I do not claim any improvement on any machine to which the intermediate springs may be attached.

I *claim* the intermediate spring, or its equivalent, substantially as described.

No. 16,665.—William D. Wesson, of Chillicothe, O.—*Improvement in Electric Telegraphs.*—Patent dated February 17, 1857.—Any [illegible] posts along the whole road. The metal elbows D D are insulated from the brackets C B, to which they are pivoted at *a*. The elbows are only allowed to play slightly between jams *b c*, which are also insulated. Each elbow is connected with the nearest elbow on the next post A by conducting wires E. The wires E are fringed with fine iron wires *f*, which hang down and vibrate freely. The pendulum I is swung forward by the circuit-breaker L on the vehicle V, (as the latter passes along,) and thus caused to turn the shaft G far enough for the crank *g* to raise the movable conductor or circuit-closer H out of contact with the elbows D D, and thus break the circuit in the line of wire E. The circuit-receivers upon the vehicle consist of horse-shoe electro magnet J J, having iron plates *k k* attached to its poles; these plates are in constant contact with the wires *f*. The circuit-receivers are connected by a conducting wire *y*, having a telegraphing apparatus in its circuit.

Claim.—Constructing the stationary telegraph line of a series immovable and interposed movable conductors, and furnishing a vehicle with a circuit-breaker, circuit-receivers, and conductors ranged to operate substantially as set forth, for the purpose of ing the circuit through the main line at a point or points wh

172(10)

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

No. 22,651.—WILLIAM G. A. BONWILL, of Dover, Del.—*Improvement in the Application of Electricity in Dental Operations.*—Patent dated February 8, 1859.—The claim and engraving explain the nature of this invention. 173(1)

The inventor says: I do not claim the application of electricity to dental purposes as this is shown in the patent of J. B. Francis.

But I *claim*, in the application of electricity to dental purposes, the mode described of extracting or extirpating the dental pulp or internal nerve of teeth, to wit: by the application of a current of electricity, through the instruments made use of in the performance of said operation, directly and constantly to the dental pulp, or internal nerve, during the operation of cutting out or extracting the same, as set forth, and for the purposes described.

No. 813.—*Improvement in Magnetic Printing Telegraphs.*—I claim, first, a series of keys, each corresponding to a character, in combination with a revolving part of a circuit, so that the touching of one of the former may cause circuit to be broken or closed for the purpose of printing, substantially as specified, when the revolving part of the circuit is in a certain required angular position proper for corresponding to the key struck.

Second. I claim a series of keys, each corresponding to a character, in combination with a revolving portion of a circuit and a shaft provided with pins arranged in a helix, all substantially such as specified, or the equivalents of the whole acting to cause circuit to be broken or closed when the revolving part is in a certain angular position, in proper correspondence with the key struck, for the purpose of printing a proper corresponding letter by means of any suitable machinery.

Third. I claim a key board or series of keys, in combination with a rotating portion of a circuit, and a type wheel, or its equivalent, so governed as to present a proper letter corresponding with a key touched to produce an impression, the combination being substantially such as set forth. 173(2)

Fourth. I claim in combination a single circuit of conductors, a key board, or series of keys, a revolving portion of a circuit, and a type wheel, substantially such as specified; and these also in combination with a printing press, and with a key shaft, or either of them, each part being substantially such as described.

Fifth. I claim a series of keys, each corresponding to a character in combination with a type wheel having similar corresponding characters, both substantially as specified, when so connected by any appropriate devices that a certain type shall be in a certain locality, when a corresponding key is actuated; and I claim those two elements in combination with a single circuit of conductors, and with a printing apparatus, or either of them.

Sixth. I claim actuating or driving a revolving portion of a circuit, or a key shaft, or both of them, by means of a prime mover acting upon them through a friction connection, the mode of operation being substantially as specified, and doing away with sudden jars and increasing rapidity of operation, when contrasted with a positive connection between such parts and a prime mover, and also permitting the two to move with varying velocities.

Seventh. I claim actuating or driving a key shaft and a revolving portion of a circuit, or either of them, by means of a friction connection with a prime mover, when the velocity of such prime mover is controlled by a governor, or some equivalent, for the purpose which either prevents its moving too fast, or increases its velocity when going to slow, or performs both these duties substantially under the mode of operation described.

Eighth. I claim governing or controlling the motions of a prime mover, which actuates a printing apparatus by the breaking and closing of an electric or galvanic circuit, so that such apparatus is put in operation both by the breaking of a circuit and by the closing thereof, substantially in the manner specified, and also the controlling of a printing apparatus, so that it shall be permitted to print when a spring returns to its normal position, at the time when a circuit is broken, the mode of operation being substantially such as set forth.

Ninth. I claim in a printing telegraph moving the paper to the types to produce an impression on the former, substantially in the manner described, as distinguished from the former modes of operation by which the types were moved towards the paper.

Tenth. I claim in combination a revolving type wheel and a roller, or its equivalent, charged with coloring matter so as to deposit such matter on the types as they in succession come in contact with the roller, the combination being substantially such as set forth, and this I claim also when the roller is grooved as described.

Eleventh. Being aware of the facts that type wheels have been permitted to revolve step by step, when controlled by escapements, and when such escapements have been actuated either by a prime mover governed by a pendulum, or by electro-magnetic force, I claim actuating an escapement which controls the motions of a type wheel by a prime mover whose motions are regulated by the breaking and closing of a circuit, under a mode of operation substantially such as described, whereby a small force derivable from magnetism controls any necessary power of a prime mover, there being a breaking and a closing of circuit corresponding with each vibration of the escapement.

Twelfth. I claim a hydraulic regulator, substantially such as described and for the purposes set forth.

Thirteenth. I claim a hydraulic regulator in combination with a type wheel and a printing apparatus and a prime mover, the combination being substantially as specified, and causing the press to point when the type wheel ceases to move for a longer time than usual.

Fourteenth. In combination with a type wheel and a printing press or apparatus, I claim apparatus substantially such as specified, for making an alarm when that apparatus is permitted or caused to act by the breaking and closing of the same circuit of conductors, which by its breaking and closing permits the printing apparatus to come into action. 173(3)

ROYAL E. HOUSE.

No. 26,003.—GEORGE M. PHELPS, of Troy, N. Y., assignor to the AMERICAN TELEGRAPH COMPANY.—*Improvement in Telegraphic Machines.*—Patent dated November 1, 1859.—The claim and engravings explain the nature of this invention. 173(4)

The inventor says: I *claim*, first, producing from a magneto-electric battery the momentary electric currents required for actuating the printing mechanism by giving momentary motion to the armature or other current inducing part of the magneto-electric battery, by means of a set of finger keys, which, when depressed, are controlled in their action upon the current inducing part of the magneto-electric battery by a mechanical contrivance which constantly moves in harmony with the uninterruptingly revolving type wheel, substantially as described.

I also claim increasing the capability of the instruments for telegraphing by so increasing the speed of the transmitting device and type wheel, in relation to the motion of the parts which perform the printing, that two or more types shall pass the platen while the printing mechanism is acting once, as described.

I also claim turning the cylindrical platen while each impression is being made, by means of rings of teeth R and T, upon the type wheel and platen, as and for the purpose set forth.

And, finally, I claim making a revolving wheel or shaft U or *l*, turn the corrector M, armature C, or another wheel or shaft, a certain fixed distance, with the same speed as itself, at any time and any desired number of times, by the use of a ratchet wheel V or *h*, catch W or *f*, guide X or *k*, and detent K or *e*, all arranged together, and with the said driving and driven wheel or shaft, for conjoint operation, as set forth. 173(5)

No. 22,531.—DAVID E. HUGHES, of New York, N. Y., assignor to the AMERICAN TELEGRAPH COMPANY, of said New York.—*Improvement in Electro-Magnetic Telegraphing.*—Patent dated January 4, 1859.—The claim and engravings will explain the nature of this invention.

The inventor says: I *claim* introducing into that portion of the electric current which passes to the opposite pole of the machine at the station where the operator is working, a retarder *g*, such substantially as herein described, whereby said portion shall not reach the near ground plate until after the other portion of the same current shall have passed over the line wire and reached the distant ground plate *d*, whereby said current is enabled to flow through the machine situated at the place of the operator, as aforesaid, without acting said machine in motion, substantially as described.

No. 26,140.—SAMUEL K. ZOOK, of New York, N. Y.—*Improved Mode of Telegraphing.*—Patent dated November 15, 1859.—The claim and engravings explain the nature of this invention.

Claim.—The construction of the telegraphic lines of metallic conductors of a high conducting power, having the portions of the wire conductors which are between the two telegraphic extremes in the earth, or submerged in the ocean or rivers, not artificially insulated, but using the earth or water as the natural insulator of those parts, in combination with the artificially insulated portions of the wire on each or other side of the battery or batteries, in the manner and for the purposes described. 173(6)

No. 22,770.—DAVID E. HUGHES, of New York, N. Y., assignor to the American Telegraph Company, of said New York.—*Improvement in Telegraphing Machines.*—Patent dated January 25, 1859.—The claim and engravings will explain the nature of this invention.

The inventor says: I *claim*, first, giving to the key, while still pressed by the operator, a second motion at the instant that the circuit is closed or broken, as the case may be, so that an indication of said closing or breaking will be given to the operator for the purposes set forth.

Second. The method described for governing the position of the letters upon the type-wheel, with respect to that of the platen or roller over which the paper travels, in order to insure an exact position of my particular letter at the moment of printing the same, viz: by so advancing or retarding the said type-wheel upon its shaft, whenever it has lost or gained in time in regard to the travel of the circuit breaker at the distant station, that the letter indicated will be certain to stand directly over the said platen, at the moment the latter brings the platen into contact with said letters.

Third. Effecting the printing of each letter without arresting the motion of the type-wheel, by causing the platen to revolve in the same direction and with the same speed as the type-wheel, while said platen is bringing up and holding the paper in contact, whereby the paper advances with the type or letter from which it is receiving an impression.

Fourth. The devices by which the type-wheel is started from its zero by an operator at a distant station, consisting of the shaft *g*, set in motion by the electric current, and acting in combination with the clutch lever *n* and the wheel *F*, whereby the type-wheel will be advanced up to the time that it becomes engaged with its driving shaft, substantially as set forth. 173(6)

No. 11,690.—JOHN DAVIS.—*Improvement in Telegraphic Keys.*—Patented September 19, 1854.

There is a key for each letter or symbol, and each key has a slot or groove through its entire length, in which is a sliding-bar B. This bar has a toothed rack at E; at one end, and just beneath the toothed rack, is a revolving toothed cylinder D, which extends under all the keys. When any key is pressed down by the finger, the toothed rack of its sliding-bar is caught by the revolving cylinder, which puts the bar in motion, and causes a series of notches and elevations *a b c* to act upon a bar G attached to the lever of the common break-circuit key. The relative lengths of the notches and elevations give the required combinations of lines and dots.

Claim.—I do not confine my invention solely to the producing of the dots and marks which Mr. Morse uses in operating his telegraphic register; any arrangement may be produced. Neither do I confine my invention to the operating of Morse's telegraphic register; it may be applied to any telegraphic registering apparatus where spaces, dots, long and short marks, are used for transmitting and recording information by telegraph. Neither do I confine my invention to the working of the respective slide with its pinion and rack; it may be operated by passing the slide against the shaft or roll—friction producing the same as the rack. Neither do I confine my invention to the spiral springs; any other may be used.

What, therefore, I do claim as my invention is the construction of a bank of telegraphic keys, as herein described, and operated by their respective pinions, or by a roll, with or without teeth; said pinions or rolls may be operated by clock-work, or by any known motor; and thereby operating the well known magnetic lever, as herein set forth; causing the connections of the battery-circuit to be completed and broken a succession of times by a single operation of the operator; said connections to be of a longer or shorter duration as the respective symbol on the respective slide shall indicate. Disclaiming any right to other telegraphic keys, and to other telegraphic operations for the producing of dots and marks. 173(7)

No. 11,058.—JOHN M. BATCHELDER.—*Improvement in Insulating Telegraph Wires.*—Patented June 13, 1854.

Claim.—The combination of an electric telegraph wire or conductor with a composition of India rubber and sulphur, forming an insulating coating upon and around the wire; this composition being the same for which a patent was granted to Nelson Goodyear, on the 6th day of May, 1851, and herein referred to. 173(8)

No. 25,718.—L. BRADLEY, of Tolsom, Cal.—*Improved Telegraphic Machine.*—Patent dated October 11, 1859.—The claim and engravings explain the nature of this invention.

The inventor says: I *claim*, first, arranging the type and mechanism for closing the circuit substantially as described, or in an equivalent manner, so that a double closing of the circuit is effected as each tooth of the type comes in contact with the closing mechanism.

Second. The combination of the type and composing sticks with a yielding insulating plate, carrying the mechanism for breaking and closing the circuit, whereby the contact at the closing mechanism with the face of the type is insured.

Third. The vibrating hook *g* and bar *i* or their equivalents, in combination with a yielding insulating plate and type and sticks, for the purpose of closing the circuit.

Fourth. The combination of the composing stick and type with the spring *e* or its equivalent, arranged substantially as described, so that the type are made to form a portion of the circuit for the purposes set forth.

Fifth. The combination of the carrying hand and mechanism for closing the circuit with the composing sticks, and type arranged on the hand, in relation to each other, substantially as described, so that the sticks are successively carried forward in the order in which they are arranged, brought into the current, and the message transmitted without interruption.

Sixth. The combination of the movable platform carrying the recording mechanism, with the rotating cylinder carrying the record paper, arranged substantially as described, so that the message as transmitted is recorded in parallel lines on the paper.

Seventh. Constructing the composing sticks and types, substantially as described, so that the sticks when filled with the type shall present an even and flat surface on either side.

Eighth. The application of a siphon pen, constructed and arranged substantially as described, for the purpose of recording the messages.

Ninth. The inclined plate B, arranged substantially as described, in combination with the hand D, whereby the composing sticks are received from the hand in such manner as not to interfere with each other's delivery, and in the same order in which they were placed on the hand. 173(9)

No. 26,625.—FRANCIS O. J. SMITH, of Westbrook, Me.—*Improvement in Electric Telegraphing Apparatus.*—Patent dated December 27, 1859.—With the keys throughout the circuit at rest upon their respective anvils *g*, the metallic circuit is complete without any galvanic operator in action; and whenever the key of either station is pressed downwards, and the metallic points *h* and *i* are brought into contact, the aforesaid metallic circuit is broken at *g* at that station only, and the circuit is reformed through the generator *k* of that station, and the sectional conductors connected with the opposite poles of that generator, and the current of electricity or galvanism acts throughout the entire circuit, and brings into use each aforesaid instrument or machine combined therewith at each of the stations in the circuit, but leaves every other generator in the circuit out of action. 173(10)

Claim.—The new and improved mode and combination of apparatus, instruments, and machines, used conjointly in the manner and for the purposes above described, and dispensing therein with all artificial insulations of conducting circuits for telegraphic purposes.

No. 24,721.—DENISON CHESEBRO, of Syracuse, N. Y.—*Improved Method of Telegraphing from Railroad Cars while Moving.*—Patent dated July 19, 1859.—The claim and engravings explain the nature of this invention.

Claim.—The combination of a sufficient number of pendants, arranged as described, and each having a movable vertical tongue, as described, and so constructed as to admit of a telegraph wire being attached to each of them in the particular manner specified with the metallic plates, wood scantling, or equivalent, and conducting internal wires attached to the roof of a railroad car, the whole being constructed, operated, and operating in the manner described and for the purposes set forth. 173(11)

No. 25,939.—E. F. BARNES, of Brooklyn, New York.—*Improved Method of Protecting Telegraphic Instruments against Atmospheric Electricity.*—Patent dated November 1, 1859.—The claim and engravings explain the nature of this invention.

The inventor says: I *claim* the application and use in a telegraphic line, or in connection with telegraphic instruments, of a vessel A, containing acidulated water or fluid, as described, and having a platinum or other metallic wire B of better conductability than the contents of such vessel passing through such vessel, and connecting by one end with the main wire and by the other with the telegraphic machine, the whole arranged substantially as and for the purposes set forth.

I claim, also, in combination or connection with such vessel of fluid A and wire B, the arrangement of the metallic points *b c d*, on the wire of the main line, and extending into the fluid in A, substantially as and for the purpose set forth. 173(12)

No. 22,683.—MOSES G. FARMER, of Salem, Mass., assignor to WILLIAM F. CHANNING, of *Boston, Mass.—Improved Mechanism for Operating Steam or Air Signal Whistles by Electro-Magnetism.*—Patent dated May 3, 1859.

The inventor says: The nature of my invention consists in the application of what I call an electro-magnetic escapement to a suitable mechanism operating an air pump, by which a current of condensed air is forced through an air whistle, organ tube, or other wind instrument, for the purpose of giving an alarm at a distance through the agency of the electric telegraph.

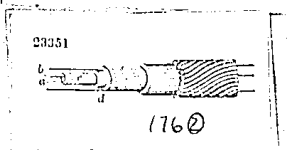
Claim.—The combination of an electro-magnetic escapement with the mechanism described for operating a steam or air whistle, as set forth. 173(13)

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

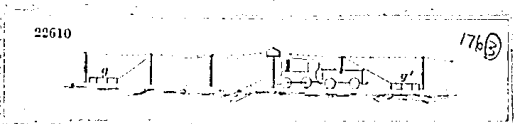
or controlled by the irregular movement of other parts of the telegraphic apparatus.

I also claim sending and receiving signals, as stated, by apparatus so arranged and combined with the main conductor that, in operating, the impulse that closes or opens the circuit shall last but for a moment, while the contact maintained at the station where the signal is received shall last a longer period, so as to advise of the necessity of exact synchronism in the movements of the mechanism at the two stations.

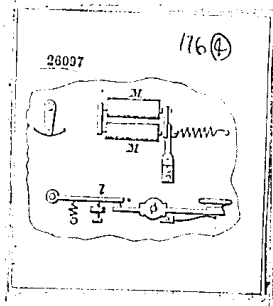
176 ①



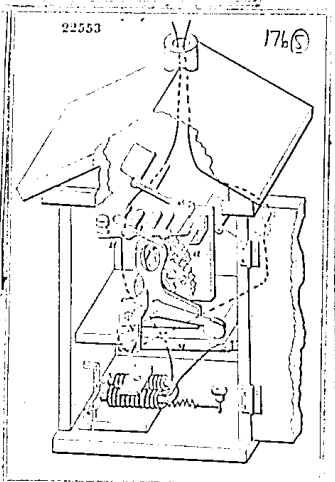
176 ②



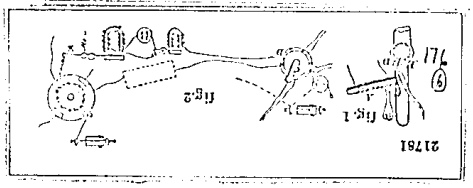
176 ③



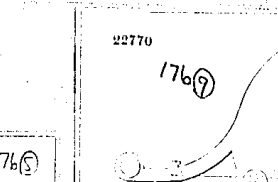
176 ④



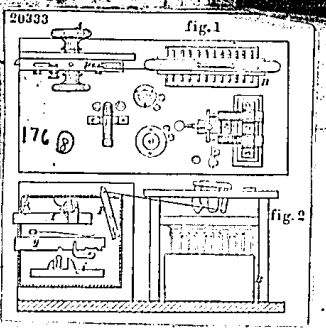
176 ⑤



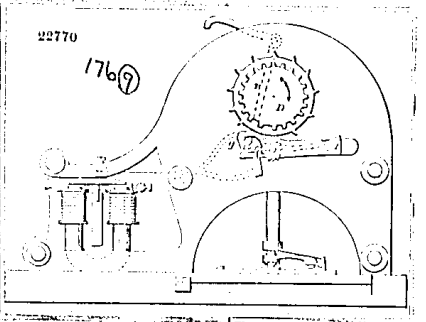
176 ⑥



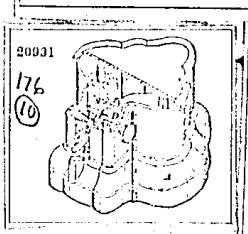
176 ⑦



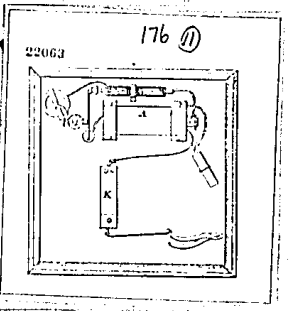
176 ⑧



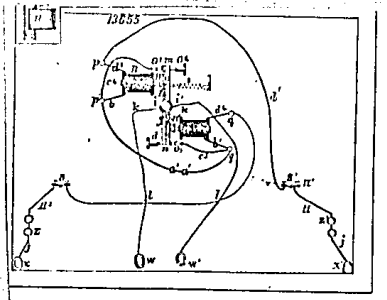
176 ⑨



176 ⑩

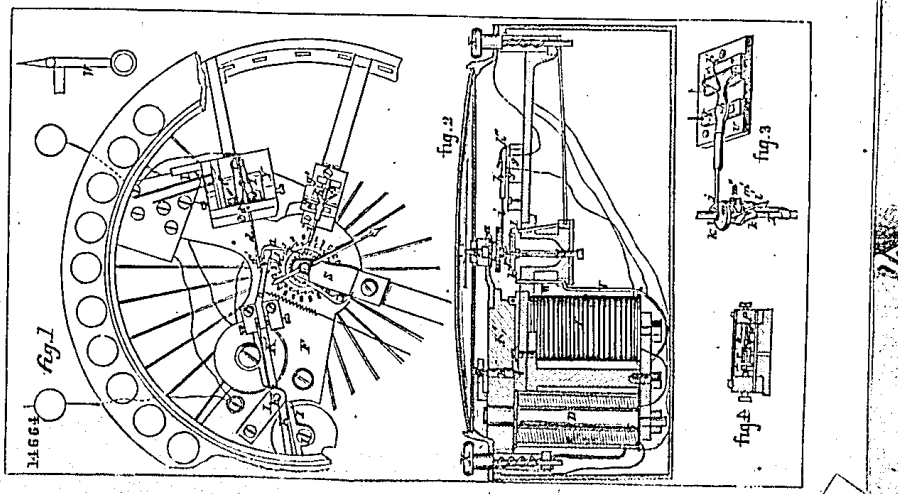


176 ⑪

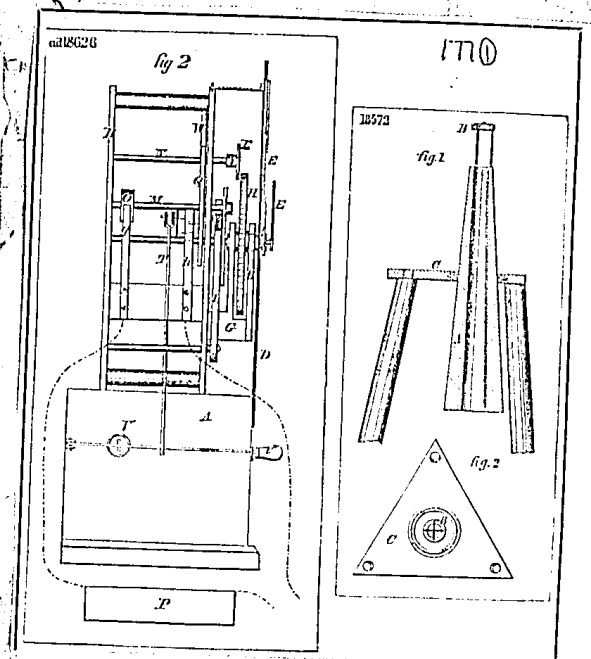


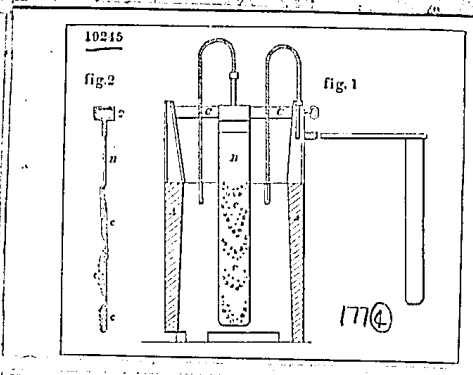
176 ⑫

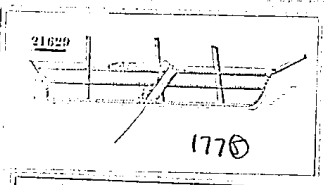
176 ⑬

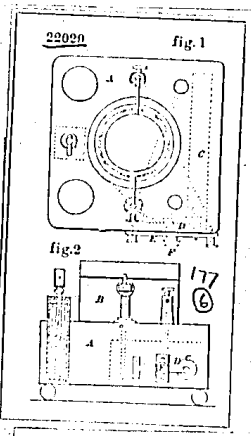


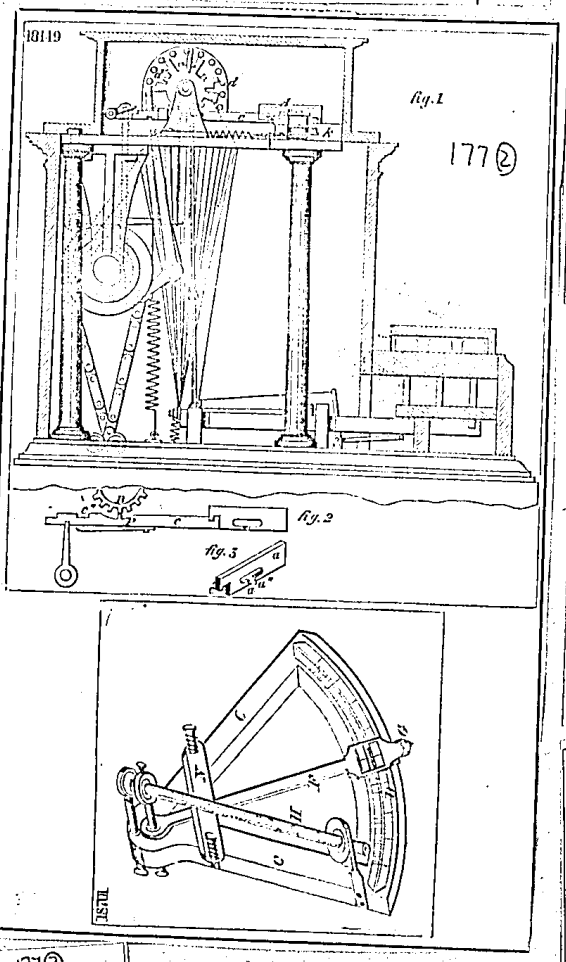
THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

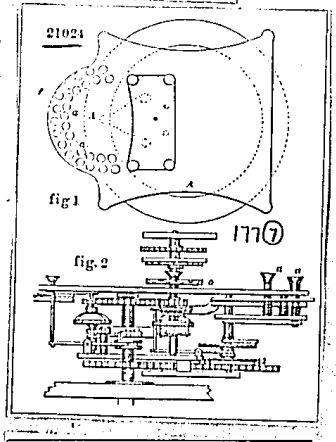


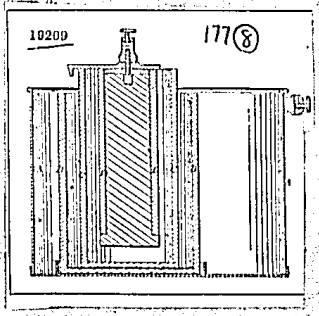


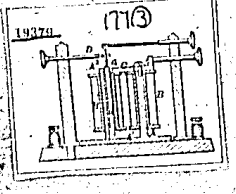








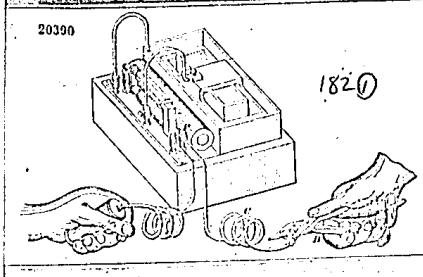




THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

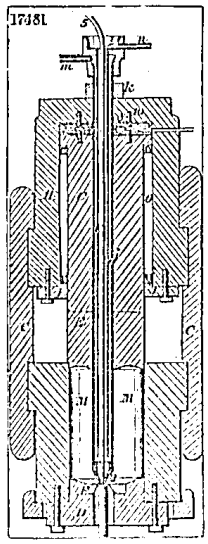
THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

20390



182①

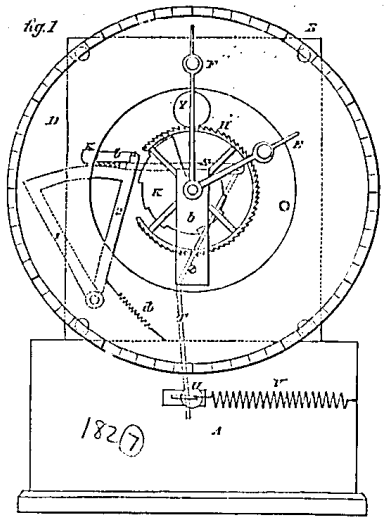
17481



182⑤

18020

Fig. 1

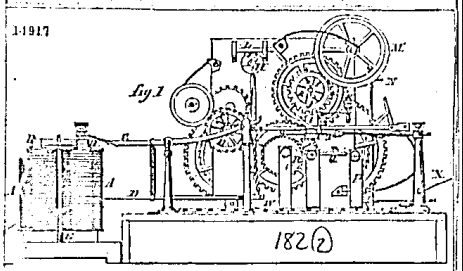


182⑦

182

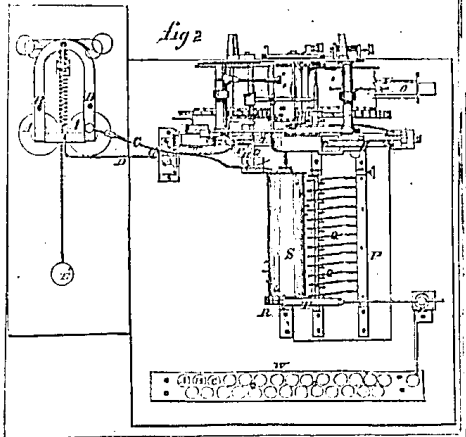
1-1917

Fig. 1

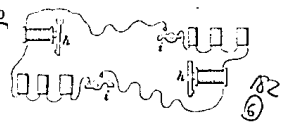


182②

Fig 2

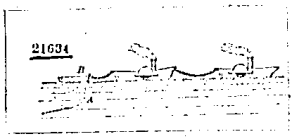


26140

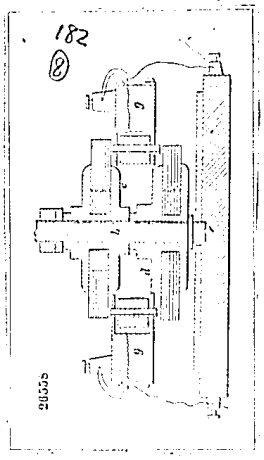


182⑤

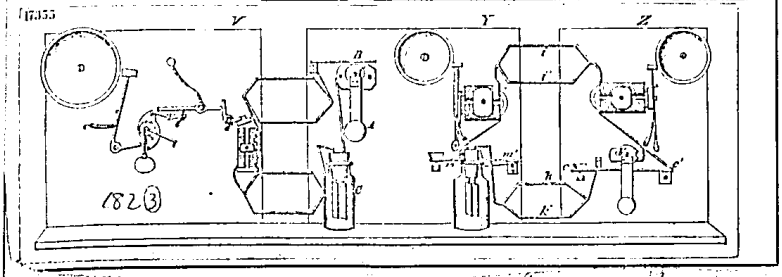
21694



182⑧



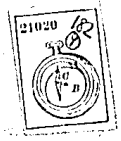
17355



182③

TICAL INSTRUMENTS.

21020 182⑧



182④

16665

Fig. 1.

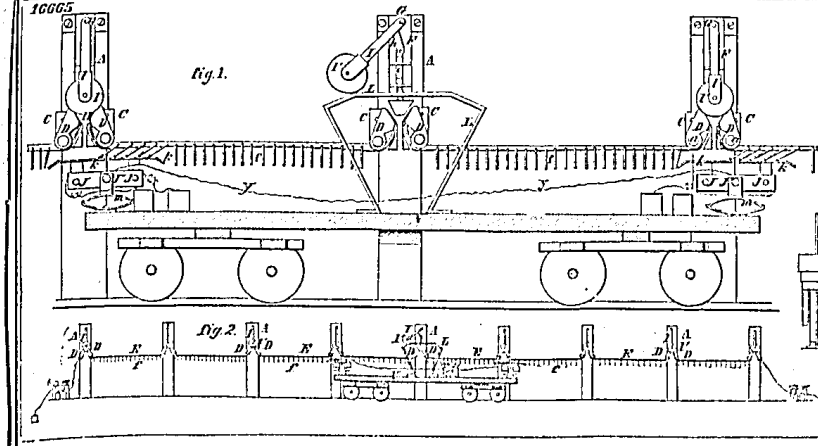


Fig. 3.

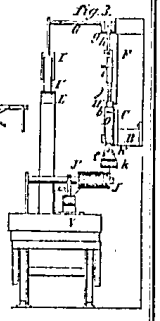
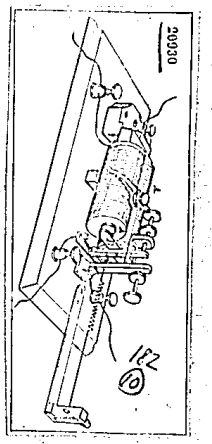


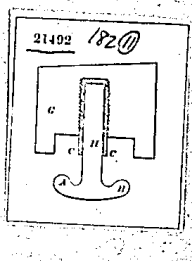
Fig. 2

20920



182⑩

21492 182⑪



THE REDUCTION RATIO FOR THIS DOCUMENT IS 78:1

183

APPLICATION OF
Electro-Magnetism to Bank Locks.

For several centuries mechanical ingenuity has been exercised to construct locks which would defy the efforts of burglars to pick or force open. The general public has always taken great interest in this contest between mechanism and dishonesty, and every improvement in the art of Lock Making has been received with satisfaction, alike by the commercial community, who are more directly interested, and all persons who delight in the discomfiture of thieves.

Many of us remember the time when the size and weight of the key was considered the great desideratum in a lock. A front door key contained enough iron to make a ploughshare, and the keyhole was about the size of a goose's head. This fallacy exploded, it was next the object of the locksmaker to make his key as small as possible, which was a great improvement, and until the introduction of the Dial Locks was considered the best form for lock keys. The dial lock, as everybody knows, dispenses entirely with the use of the key, and is worked by means of a spindle running through the door of the safe. This spindle is considered by safe men to be one of the weak points of a burglar-proof safe, and its possible abolition has for some time been a matter of speculation among some of our best safe makers.

We do not propose to enter into a discussion of the "pickability" or security of the dial locks. Those persons informed of the frequent robberies of our banks and public offices can judge for themselves by these facts, while those acquainted with the use of the Micrometer, and the results of what are known as "Great Lock Contests" between the leading manufacturers of this class of locks, can form their opinions upon the possibilities of the case.

The application of Electro-Magnetism to Bank Locks is the result of long and careful study, and is for the first time exhibited to the public at the American Institute Fair of 1870. The advantages of the Electro-Magnetic Combination Lock over all others are:

I. It abolishes the use of the key, the keyhole, the spindle, and the dial, thus preventing the possibility of drilling or blowing open the lock.

II. The only force or agent employed being electricity, which is intangible, none of the senses can be employed to open it, thus rendering it unpickable.

III. The lock need not of necessity be placed upon the door of the safe, but may be affixed to the back or sides; or if there be an inner safe the lock can be placed inside the inner safe, and the same lock used to unlock both the outer and inner doors with different combinations.

IV. The operation of opening the lock is so simple that it is at once understood and remembered.

The lock exhibited has seven combination wheels, giving 2,799,360,000,000 different combinations. It can be opened inside of two minutes, and the combination changed at any time the safe is open with facility and ease.

That the lock is perfectly unpickable is at once obvious to any one understandingly examining it, and it not only gives perfect security against the contrivances of thieves, but also does away with the weakest point of a burglar-proof safe as at present made, viz., the keyhole or spindle of the lock.

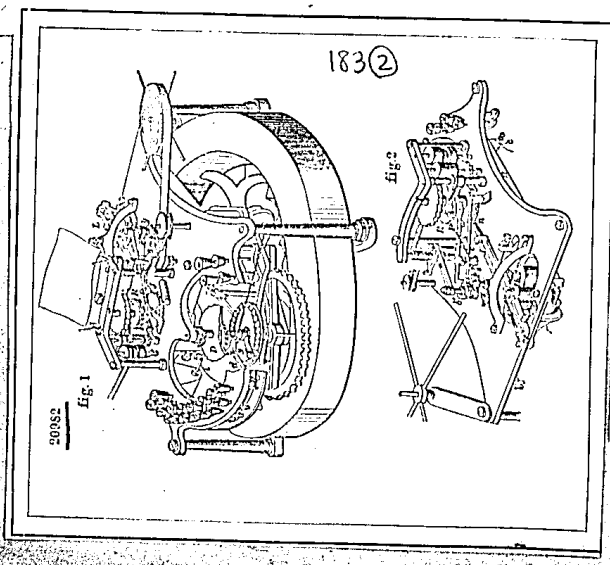
The inventor submits his discovery to the public with the conviction that he has at last accomplished that which has heretofore been considered well nigh hopeless—a lock which can defy the dishonest and give absolute security to those using it.

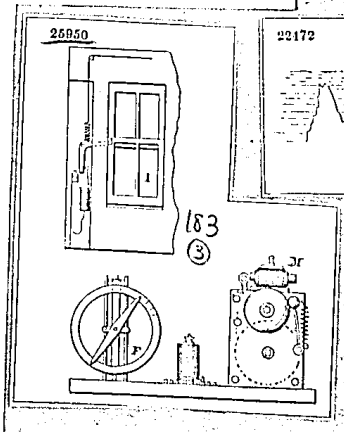
SEPTEMBER 1st, 1870.

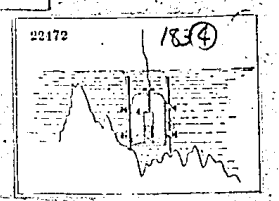
ELECTRO-MAGNETIC BANK LOCK CO., 1830

OFFICE, No. 9 WILLOUGHBY STREET,

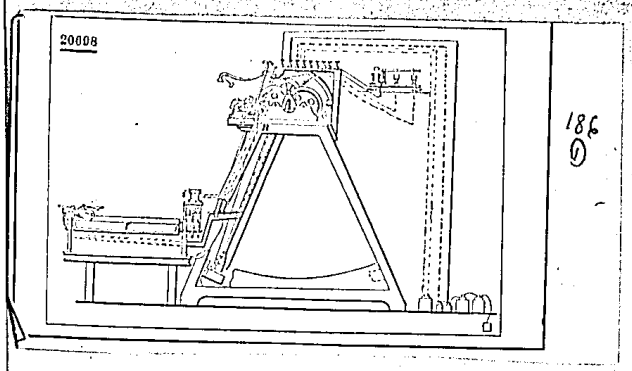
BROOKLYN.

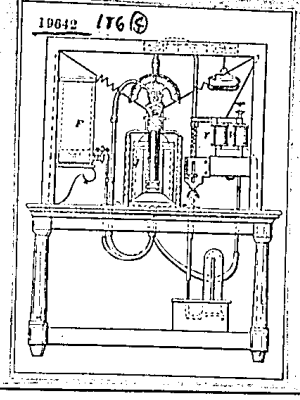


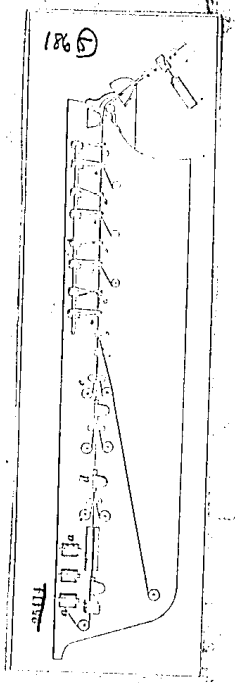


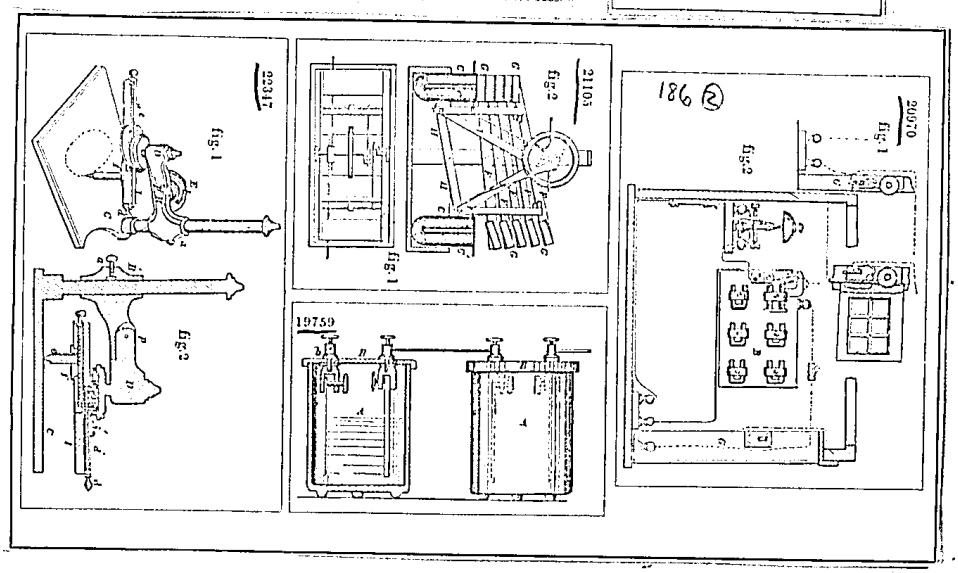


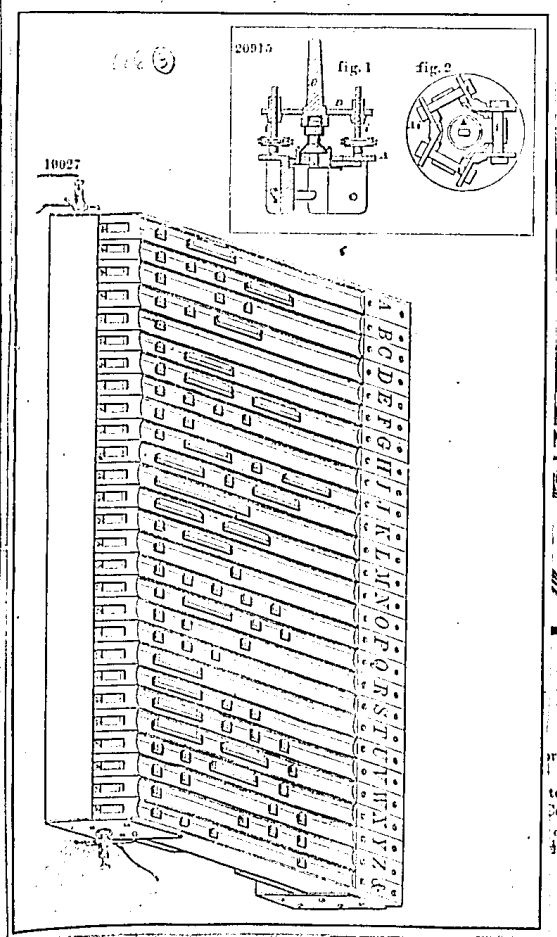
THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

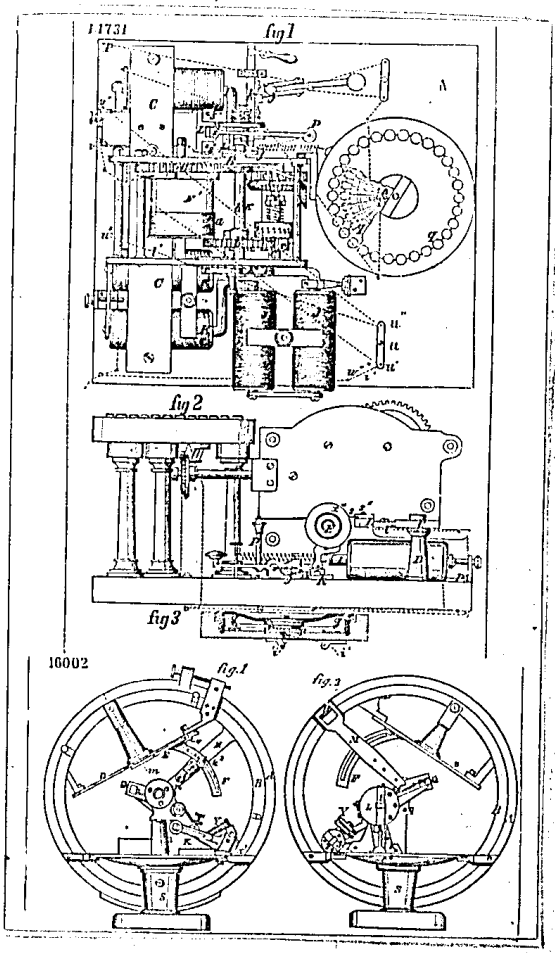










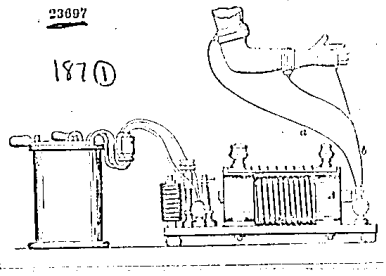


THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

187

23697

187 ①



10139

fig. 1

187 ⑤

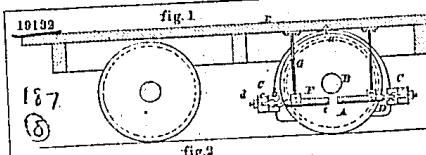
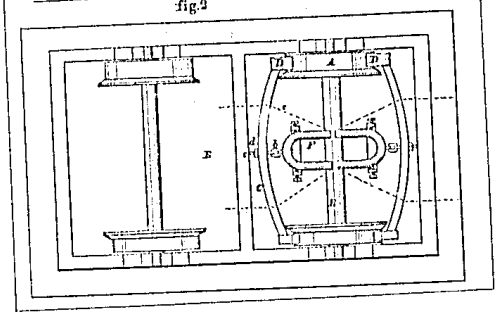


fig. 2



11733

fig. 1

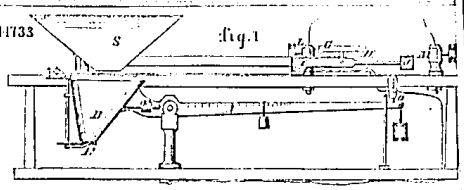
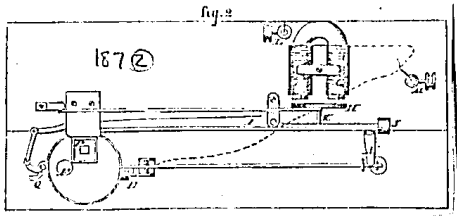
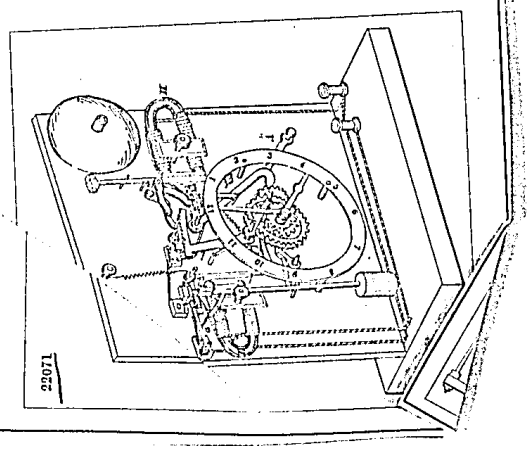


fig. 2

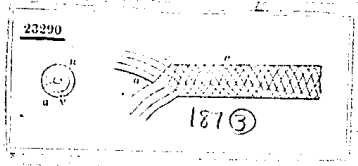
187 ②





22071

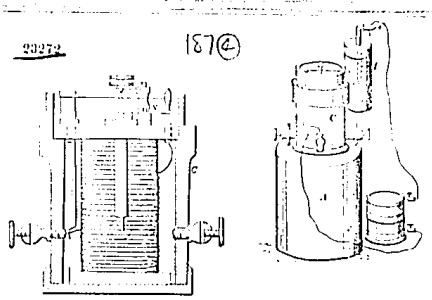
23290



187 ③

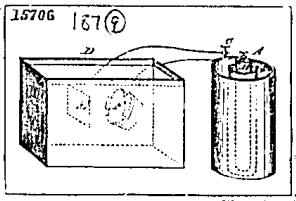
23272

187 ④



15706

187 ⑨



23060

187 ⑥

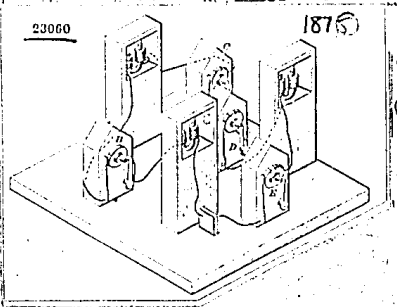
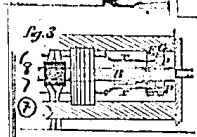


fig. 3



15596

fig. 1

187 ⑩

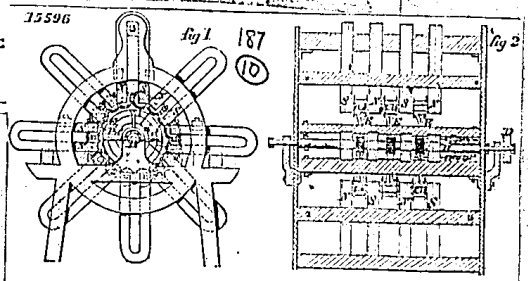


fig. 2

14682

fig. 1

187 ⑥

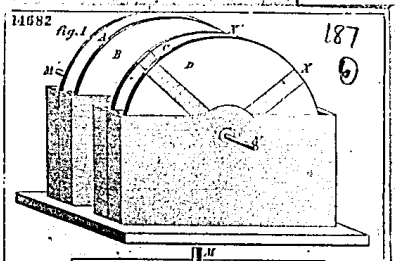
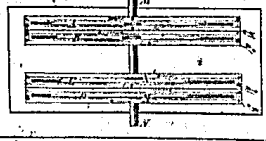
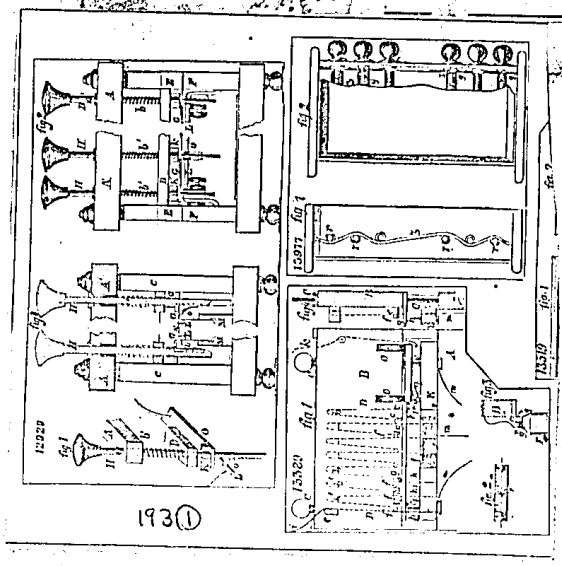
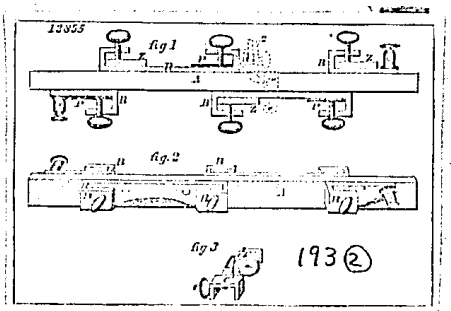


fig. 2

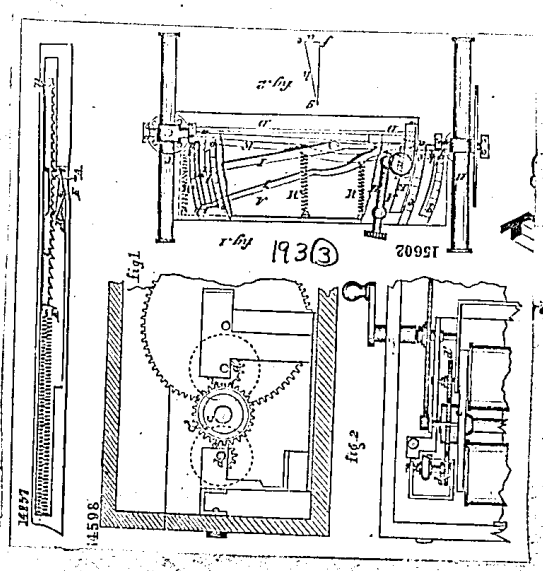




193①



193②



193③

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1

196

Patent Combination Stencil Alphabet,

For Marking Show Cards, Boxes, Bags, Trunks, &c.

The rapidity and ease with which one can mark with the Combination Alphabet and Figures, and the simplicity of its arrangement, has caused it to be welcomed by business men of all grades.

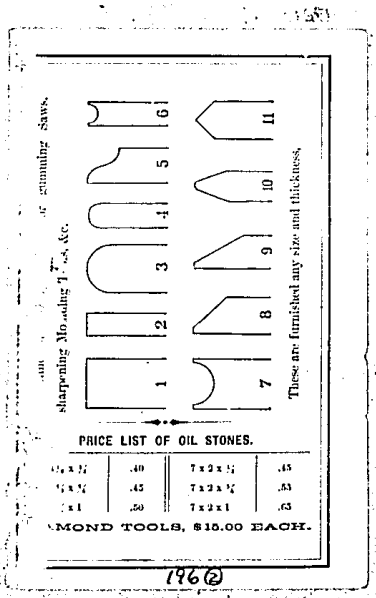
For Merchants and Manufacturers for marking show cards and price lists; for Real Estate Agents and others for out-door signs; for S. S. Superintendents for printing song rolls, and for Farmers for bags, etc., it is an indispensable assistant.

Beside the Alphabet and Figures, we have added the following marks: *$, c, No., &, 1-4, 1-2, lbs., gals.,* and the punctuation marks, all cut on one piece of brass, so that any letter or figure can be marked instantly. The arrangement is such as to properly space each letter, making the words appear uniform, without trouble to the person using it.

PRICE LIST.

1-1 inch,	$2.00
1-2 "	1.75
3-4 "	
1 "	
1 1-2 "	
2 "	

1960



PRICE LIST OF OIL STONES.

½ x ½	.40	7 x 2 x ½	.45
½ x ¾	.45	7 x 2 x ¾	.53
x 1	.50	7 x 2 x 1	.63

MOND TOOLS, $15.00 EACH.

1960

~~35~~
72
74
86
90
91
103
126

[ITEM FOUND IN BOOK]

THE REDUCTION RATIO FOR THIS DOCUMENT IS 18:1